

# Your **C**hild's Imm<sup>u</sup>nisation

A guide for parents

For children  
born on  
or after  
**1 October  
2016**



[www.immunisation.ie](http://www.immunisation.ie)



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive

# Childhood Immunisation Schedule

Immunisation is a safe and effective way to protect your child against serious diseases. This guide tells you:

- which vaccines your child will receive and when they will get them;
- why it's important that your child gets all their vaccinations;
- how the vaccines protect your child; and
- what to expect after your child gets their vaccines.

The guide also answers some of the questions you may have about immunisation.

At the back of this guide you will find:

- a magnet with the immunisation schedule. Please put this somewhere visible to remind you about the vaccines your child needs; and
- your child's immunisation passport. Please keep this safe and bring it to all appointments so it can be filled in and kept up to date.

From 2 to 13 months your child will get a series of vaccines which will protect them against some very infectious diseases.

The table opposite shows which vaccines are given and when.

**All the immunisations listed are free at your GP (family doctor) surgery.**

Page 4 explains the abbreviations.

## Age

## Visit

## Vaccination

**2**  
months

**Visit 1**  
3 Injections  
1 Oral drops

6 in 1  
MenB (new)  
PCV  
Rotavirus (new)

**4**  
months

**Visit 2**  
2 Injections  
1 Oral drops

6 in 1  
MenB  
Rotavirus

**6**  
months

**Visit 3**  
3 Injections

6 in 1  
PCV  
MenC

**No Rotavirus vaccine on or after 8 months 0 days**

**12**  
months

**Visit 4**  
2 Injections

MMR  
MenB

**13**  
months

**Visit 5**  
2 Injections

Hib/MenC  
PCV

**For children born on or after 1 October 2016**

Page 4 explains the above abbreviations.

# Childhood Immunisation Schedule



## Five visits to your GP (doctor) to be fully vaccinated

Your child needs five visits to their GP to be fully vaccinated. Please bring your child's immunisation passport to each visit. This is at the back of this booklet.

The following abbreviations will help you to understand the table. You'll find more information about these diseases on pages 51-57.



<b>6 in 1</b>	Diphtheria, Haemophilus influenzae b (Hib), Hepatitis B, Pertussis (whooping cough), Polio and Tetanus
<b>PCV</b>	Pneumococcal conjugate
<b>Rotavirus</b>	Rotavirus oral vaccine
<b>MenB</b>	Meningococcal B
<b>MenC</b>	Meningococcal C
<b>MMR</b>	Measles, Mumps, Rubella
<b>Hib/MenC</b>	Haemophilus influenzae b + Meningococcal C combined vaccine

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How serious are these diseases?

- Diphtheria
  - Haemophilus influenzae b (Hib)
  - Hepatitis B
  - Measles
  - Meningococcal B (MenB)
  - Meningococcal C (MenC)
  - Mumps
  - Pertussis (whooping cough)
  - Pneumococcal disease
  - Polio
  - Rotavirus
  - Rubella (German measles)
  - Tetanus
- 

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# The Childhood Immunisation Schedule

For children born on or after 1 October 2016

In Ireland, all the recommended immunisations for your child are free.

## Remember

Your child needs **five** visits to your GP (doctor) to complete their course of vaccines and be fully protected against serious diseases.



Visit 1



Visit 2

## What happens before immunisation?

Before your child is immunised, the GP (doctor) or practice nurse will check with you that your child is well and able to get the vaccines. If you have any worries or questions about your child's immunisations, ask the GP (doctor) or practice nurse before your child is immunised. You can also get more information from the public health nurse at your local HSE health clinic.

There are very few reasons why your child should not get a vaccine.

## Should I give my child anything before the immunisation?

You can give your child milk (unless allergic to it) a few minutes before their vaccination. This has been shown to help to reduce pain.

At the 2 and 4 month vaccine visits, your child will get rotavirus oral vaccine (see page 56). You can feed your child at any time before or after this vaccine.



**Visit 3**



**Visit 4**



**Visit 5**



# Visit 1

The HSE will write to remind you to visit your GP (doctor) for the immunisations. If you do not get a letter from the HSE, you should arrange to visit your GP (doctor) when your child is two months old.

## **What vaccines will my child get at two months of age?**

When your child is two months they will get four vaccines:

1. The 6 in 1 vaccine to protect against diphtheria, haemophilus influenzae b (Hib), hepatitis B, pertussis (whooping cough), polio and tetanus;
2. The MenB vaccine to protect against Meningococcal B disease;
3. The PCV vaccine to protect against pneumococcal disease; and
4. The rotavirus oral vaccine to protect against rotavirus disease.

**The rotavirus oral vaccine is given as drops into your child's mouth. The other vaccines are given as injections in your child's legs.**

You should watch how your GP (doctor) / practice nurse gives the rotavirus oral drops to see how to give infant liquid paracetamol.





## Remember

Your child needs **four** more visits to your GP (doctor) to get all their vaccines and to be fully protected against serious diseases. Please bring your child's immunisation passport to each visit.

## What can I expect after vaccination?

Your child may have a sore leg or fever especially after the MenB vaccine. This is why we recommend that you give your child **3 doses** of liquid infant paracetamol after the first visit (at 2 months of age).

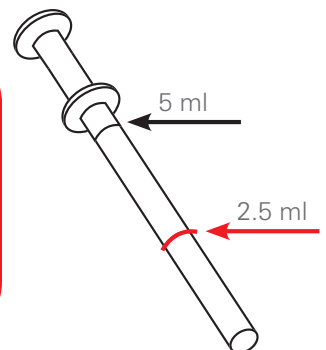
1. Give 2.5 mls (60 mg) of liquid infant paracetamol shortly after the vaccine has been given.
2. Give a second dose of 2.5 mls (60 mg) 4 to 6 hours after the first dose.
3. Give a third dose of 2.5 mls (60 mg) 4 to 6 hours after the second dose.

If your child still has a fever, give a fourth dose of 2.5 mls (60 mg) 4 to 6 hours after the third dose.

**If you are worried about your child, please contact your GP (doctor), practice nurse or public health nurse at your local HSE clinic for advice.**

## What happens next?

Make an appointment with your GP (doctor) for your child's four month vaccines. It's a good idea to put a reminder in your phone or write the date of your child's next appointment on a calendar.





# Visit 2

## What vaccines will my child get at four months of age?

When your child is four months they will get three vaccines:

1. The 6 in 1 vaccine (this is the same vaccine that your child got when they were two months);
2. The MenB vaccine to protect against Meningococcal B disease (this is the same vaccine that your child got when they were two months); and
3. The rotavirus oral vaccine to protect against rotavirus disease (this is the same vaccine that your child got when they were two months).

**The rotavirus oral vaccine is given as drops into your child's mouth. The other vaccines are given as injections in your child's legs.**

## What can I expect after vaccination?

Your child may have a sore leg or fever especially after the MenB vaccination. This is why we recommend that you give your child **3 doses** of liquid infant paracetamol after the four month visit.



## Remember

Your child needs **three** more visits to your GP (doctor) to get all their vaccines and to be fully protected against serious diseases. Please bring your child's immunisation passport to each visit.

1. Give 2.5 mls (60 mg) of liquid infant paracetamol shortly after the vaccine has been given.
2. Give a second dose of 2.5 mls (60 mg) 4 to 6 hours after the first dose.
3. Give a third dose of 2.5 mls (60 mg) 4 to 6 hours after the second dose.

If your child still has a fever, give a fourth dose of 2.5 mls (60 mg) 4 to 6 hours after the third dose.

**If you are worried about your child, please contact your GP (doctor), practice nurse or public health nurse at your local HSE clinic for advice.**

## What happens next?

Make an appointment with your GP (doctor) to attend for your child's six month vaccines. It's a good idea to put a reminder in your phone or write the date of your child's next appointment on a calendar.



# Visit 3

## What vaccines will my child get at six months of age?

When your child is six months they will get three vaccines:

1. The 6 in 1 vaccine (this is the same vaccine that your child got when they were two months and four months old);
2. The PCV vaccine (this is the same vaccine that your child got when they were two months old); and
3. The MenC vaccine to protect against Meningococcal C disease.

The vaccines are given as injections in your child's legs.

## What can I expect after vaccination?

Your child may have a sore leg or fever after vaccination. **Your child does not need 3 doses of liquid infant paracetamol after this visit because they have not had the MenB vaccine.**

However if they have a high fever over 39°C (feel much hotter than usual), or they appear distressed, you can give them:

1. milk or cooled boiled water; and
2. liquid infant paracetamol or infant ibuprofen – follow the directions on the package.





## Remember

Your child needs **two** more visits to your GP (doctor) to complete their course of vaccines and be fully protected against serious diseases. Please bring your child's immunisation passport to each visit.

**If you are worried about your child, please contact your GP (doctor), practice nurse or the public health nurse in your local HSE clinic for advice.**

## What happens next?

Make an appointment with your GP (doctor) to attend for your child's 12 month vaccines. It is a good idea to put a reminder in your phone or write the date of your child's next appointment on a calendar.

The HSE will send you a letter to tell you about the vaccines that your child will get at their fourth visit at 12 months and at their fifth visit at 13 months.



# Visit 4

The HSE will write to tell you about the vaccines that your child will get at their fourth visit at 12 months and at their fifth visit at 13 months. You should arrange to visit your GP (doctor) for these immunisations. If you do not get a letter from the HSE, you should arrange to visit your GP (doctor) when your child is 12 months old.

## **What vaccines will my child get at 12 months of age?**

When your child is 12 months they will get two vaccines:

1. The MMR vaccine to protect against measles, mumps and rubella; and
2. The MenB booster (this is the same vaccine that your child got when they were two months and four months of age).

These vaccines are given as injections in either the arm or the leg.

## **What can I expect after vaccination?**

Your child may have a sore arm or leg or fever after vaccination.

Your child may get a mild rash with fever (called 'mini-measles') six to 10 days after vaccination. Your child will not pass 'mini-measles' on to anyone else.

Your child may get swelling of the glands under their jaw (called 'mini-mumps') three weeks after vaccination. Your child will not pass 'mini-mumps' on to anyone else.



## Remember

Your child needs **one** more visit to your GP (doctor) to get all their course and to be fully protected against serious diseases. Please bring your child's immunisation passport to each visit.

Your child may have a sore leg or fever after vaccination. If they have a high fever over 39°C (feel much hotter than usual), or they appear distressed, you can give them:

1. milk or cooled boiled water; and
2. liquid infant paracetamol or infant ibuprofen – follow the directions on the package.

**As your child is now older they do not need to routinely get 3 doses of paracetamol after the MenB vaccine.**

**If you are worried about your child, please contact your GP (doctor), practice nurse or the public health nurse at your local HSE clinic for advice.**



## What happens next?

Make an appointment with your GP (doctor) to attend for your child's 13 month vaccines. It's a good idea to put a reminder in your phone or write the date of your child's next appointment on a calendar.



# Visit 5

## What vaccines will my child get at 13 months of age?

When your child is 13 months they will get two vaccines:

1. The Hib/MenC vaccine. This vaccine increases the protection your child got at their 2, 4 and 6 month injections for Hib (as part of the 6 in 1 vaccine) and MenC, which they got at 6 months of age; and
2. The PCV vaccine (this is the same vaccine that your child got when they were two months and six months of age).

These vaccines can be given as injections in the arm or the leg.

## What can I expect after vaccination?

Your child may have a sore leg or fever after vaccination. If they have a high fever over 39°C (feel much hotter than usual), or they appear distressed, you can give them:

1. milk or cooled boiled water; and
2. liquid infant paracetamol or infant ibuprofen – follow the directions on the package.

**If you are worried about your child, please contact your GP (doctor), practice nurse or the public health nurse at your local HSE clinic for advice.**





Your child has now completed the childhood immunisation schedule and does not need any more vaccines until they are four to five years old. Keep your child's immunisation passport safe for future vaccinations.



# The two new vaccines

## MenB vaccine

The MenB vaccine helps to protect your child from meningococcal B disease. This is a serious bacterial infection which can cause meningitis (inflammation of the lining around the brain) and septicaemia (blood poisoning).

Meningococcal B causes most of the infections and deaths from meningitis of young children in Ireland. The MenB vaccine will reduce these infections and deaths.

The vaccine is safe and effective and is given in many countries around the world, including all children in the UK.

## Who should get the MenB vaccine?

All children born on or after 1 October 2016 should get the MenB vaccine at their 2, 4 and 12 month visits.

## What should I expect after the MenB vaccine?

Your child may have discomfort, redness or swelling around the area where the injection was given.

Children under 12 months are more at risk of getting a high fever (over 39°C) after the MenB vaccine.

We recommend giving your child **3 doses** of liquid infant paracetamol after their 2 and 4 month vaccines. You should give your child 2.5 mls (60 mg) of liquid infant paracetamol, using the syringe in the bottle provided by your chemist. It is only a small amount, about ½ a teaspoon, and should be given as:

1. 2.5 mls (60 mg) of liquid infant paracetamol at the time of the vaccine or shortly after.
2. A second dose of 2.5 mls (60 mg) 4 to 6 hours after the first dose.
3. A third dose of 2.5 mls (60 mg) 4 to 6 hours after the second dose.

Liquid Infant Paracetamol		2 month visit	4 month visit
Dose 1	2.5 mls (60 mg)	At the time of injection	At the time of injection
Dose 2	2.5 mls (60 mg)	4 - 6 hours after dose 1	4 - 6 hours after dose 1
Dose 3	2.5 mls (60 mg)	4 - 6 hours after dose 2	4 - 6 hours after dose 2

If your child weighed less than 3.5 kg (7 lb 7 oz) at their 6 week check, you should tell your GP (doctor) or practice nurse so they can re-weigh your child and tell you the correct amount of paracetamol to give for your child.

**If your child still has a fever, you may give 1 further dose of paracetamol. If you are worried about your child, please contact your GP (doctor), practice nurse or public health nurse for further advice.**

You do not need to give your child paracetamol after their MenB vaccine at 12 months unless they have a high fever.

**Giving paracetamol to young children can be difficult. You should watch how your GP (doctor) / practice nurse gives the rotavirus oral drops to see how best you can give the paracetamol to your child.**

## Rotavirus oral vaccine

Rotavirus is a viral infection which causes diarrhoea and vomiting in infants and young children. It is very infectious and can be spread easily through:

- hand to mouth contact (touching toys, surfaces, dirty nappies); or
- coughing and sneezing.

Most children will recover at home but some need to be admitted to hospital. Every year in Ireland around 880 children under the age of 5 are admitted to hospital with rotavirus infection. The average length of time they spend in hospital is 5 days.

The rotavirus oral vaccine will reduce these infections and hospital admissions. The vaccine is safe and effective and is given to all children in many other countries, including the UK, US and Australia.

**The rotavirus oral vaccine is given as a liquid dropped into the mouth of your child. You can feed your child at any stage before or after the vaccine.**

## Who should get the rotavirus oral vaccine?

All children born on or after 1 October 2016 should get the rotavirus vaccine at their 2 and 4 month visits. It is important that your child gets the vaccine on time to get the best protection.

## What should I expect after the rotavirus oral vaccine?

Most children have no problems after having the vaccine. Some children may get irritable or have mild diarrhoea, and a few children might experience some tummy pain, have trapped wind or inflamed skin.



Very rarely, a child might develop a blockage in their gut (called intussusception). This happens in about 1 in 50,000 children vaccinated. Children with a blocked gut get a severe pain in their tummy. The pain will come and go, but will get more frequent over a few hours. They might also be sick or get blood in their nappies. If this happens, contact your GP (doctor) urgently. This can be treated in hospital.

**Rotavirus vaccine cannot be given on or after 8 months and 0 days of age as the risk of a blocked gut is greater in older children.**



## Remember

Your child must get their rotavirus vaccines before they are **8 months old**.

# Immunisation and why it is so important for your child to get their vaccines

## What is immunisation?

Immunisation is a simple, safe and effective way to protect your child against certain diseases. The risks from having these diseases are much greater than the risk of any minor side effects from immunisation.

## What causes infection?

Infections are caused by germs entering the body:

- through cuts,
- when we breathe in, or
- when we swallow.

The germs then cause diseases such as meningitis (inflammation of the lining around the brain), pneumonia (a lung infection) or septicaemia (blood poisoning).

## What is a contagious disease?

This is a disease that spreads from one person to another usually through coughs and sneezes. Some people 'carry' the germs in their body but are not sick themselves. For example,

1 in 10 of us carry meningococcal germs but only 1 in 10,000 gets sick with meningitis or septicaemia.

Other examples of contagious diseases include measles, whooping cough, tuberculosis (TB), diphtheria and polio.

## **How does my child's body fight infection?**

When germs enter your child's body, your child's immune system makes 'antibodies' to the germs. Antibodies do two things:

1. They attack and destroy the germs. However, it takes time for the body to make enough antibodies. Sometimes the germs may damage your child's body before the antibodies can destroy them.
2. They stay in your child's body to protect them against future infections. If the same germs try to infect your child again, the antibodies will destroy them before they have a chance to make your child sick. This way of dealing with germs is called 'natural immunity'. It is why most people get diseases like measles or chickenpox only once, even though they might be exposed to them many times.

The problem with getting natural immunity from germs is that your child has to get sick before they develop immunity. In fact, some germs could make your child very sick or even kill them before their body could produce enough antibodies to destroy the germs. This is why we give vaccines to protect your child against these germs.

## **How do vaccines work?**

When your child is given a vaccine, their body responds by making antibodies, in the same way as if they had caught the

disease but without getting sick. The antibodies that your child's body makes then stay in their body to protect them against the actual disease.

## **How long do vaccines take to work?**

It usually takes a few weeks for vaccines to work, so your child will not be protected immediately.

## **Why does my child need more than one dose of a vaccine?**

Most vaccines need to be given several times to build up long-lasting protection. For example, a child who gets only one or two doses of the whooping cough vaccine is only partly protected against whooping cough and may still catch the disease.

This is why it is so important that your child completes all five visits to the GP (doctor) and gets all their immunisations.

**When your child reaches school age, they will get more doses of some vaccines to give them even better long-term protection.**

**These are called booster doses.**



# The childhood immunisation schedule explained

**The childhood immunisation schedule has changed for all children born on or after 1 October 2016.**

## **Why has the schedule changed?**

We are introducing two new vaccines for children born on, or after, 1 October 2016. The new vaccines will protect against Meningococcal B disease (the MenB vaccine) and rotavirus disease (the rotavirus oral vaccine). The timing of some of the other vaccines has been changed so that the MenB vaccine can be given as early as possible, to protect your child. You can read more about the timing in the 'My Child's Immunisation Schedule' part of this guide on pages 10 - 20.

## **Why are vaccines given at such an early age?**

Young children are most at risk of getting these diseases and need to be protected as early as possible. For example, children younger than six months are at the highest risk for serious complications of whooping cough (6 out of 10 children in this age group need to go into hospital, and 9 out of 10 deaths from whooping cough are in this age group).

Also, the rotavirus oral vaccine can only be given to children under 8 months of age. This is because in very rare cases a child can get a blockage in the gut if the vaccine is given later.

The MMR vaccine is an exception. It is not usually given to children under 12 months because it may not work properly in young children.

**Your child needs to get the vaccines at the right age so that they are protected from serious diseases when they are most vulnerable.**

## **Why are so many vaccines given together?**

Some parents worry that giving several vaccines at once will overload their child's immune system or that the vaccines may not work properly.

However, there is nothing to worry about as your child's immune system can easily cope with vaccines. Studies have shown that vaccines are just as safe and effective when they are given together as when they are given separately.

By getting several vaccines at the same time, your child is protected at a younger age and needs fewer injections. For example, if your child received single injections of the measles, mumps and rubella vaccines instead of the combined MMR vaccine, they would have to have 6 injections instead of 2.

Your child needs a number of vaccines to get the best protection, so it is important to complete the course of vaccines.

## **Will immunisations still work if my child doesn't get the vaccines at the right time?**

Yes. Most of these vaccines can be given at any age, and a child who misses one injection in a course of injections does not have to start again. But your child will not be fully protected until they get all the vaccines.

Remember the rotavirus oral vaccine can only be given to children under 8 months of age.

## What will happen if my child doesn't get the vaccines at all?

One of two things could happen:

1. your child may never come into contact with the germs that cause these diseases and so would not become ill.
2. your child may come into contact with the germs, either as a child or as an adult. If they do, there is a good chance they will get the disease.

If your child gets the disease, they could be:

- mildly ill and have to stay inside for a few days; or
- very sick and have to go into hospital or, at worst, die.

Your child could also spread the diseases to others who are not protected, such as children who are too young to be vaccinated. Many people could get very sick and some could die if not enough people in your community are protected.

## What are my child's chances of being exposed to these diseases?

Some of these diseases are very rare in Ireland today, so the chances of exposure are small, but others are still fairly common. **Also, even though some of the diseases are rare in Ireland they are common in other countries**, so your child could get those diseases while travelling abroad.

Don't assume that your child is completely safe from diseases, even the rare ones. There are still cases of diphtheria in some

Asian countries and one child died from diphtheria in Belgium in 2016. In 2010, there was a large polio epidemic in Eastern Europe. Polio still occurs in Pakistan and Afghanistan.

With increased travel to and from these countries, it is possible that these diseases will happen in Ireland. If there are not enough people immunised, there will be epidemics in which many people will get the disease and some will die.

If your child is not immunised, they are at a greater risk of getting these infections when they are older. Some infections are more serious in teenagers or adults than in children. For example, mumps in teenage boys or young men may cause swelling of the testicles and they may not be able to have children. If a woman catches rubella during the early stages of pregnancy, her child may have major birth defects. Also, measles can be more serious in adults.

## **Do vaccines always work?**

Vaccines work most of the time, but not always. Most childhood immunisations protect at least 9 out of 10 (90% to 99%) of the children who get them, but sometimes a child will not respond to certain vaccines.

**Get the vaccine  
on time every time**





This is another reason why it's important for all children to be immunised. A child who does not respond to immunisation depends on the immunity of others around them for protection. Your child could be infected by a child who hasn't been immunised.

## How effective are vaccines?

Vaccine	Percentage of children immune after getting the recommended doses of vaccine
Diphtheria	97%
Hepatitis B	80 to 100%
Hib	95 to 100%
MMR	95%
MenB	88%
MenC	90%
Pertussis (whooping cough)	75 to 90%
Pneumococcal (PCV)	90%
Polio	99%
Rotavirus (oral)	82 to 94%
Tetanus	Almost 100%



In a school of 1,000

No MMR vaccine X

- 1,000 cases of measles
- 40 children get pneumonia
- 50 children get an ear infection
- 1-2 children die

Vaccinated with MMR ✓

- 50 cases of measles
- 2 children get pneumonia
- 2-3 children get an ear infection



# Vaccine contents and safety

## What is in vaccines?

Vaccines contain:

- active ingredients (the vaccine itself); and
- additives such as preservatives and stabilisers.

## Active ingredients

Some vaccines are made from tiny amounts of the same germs that cause infections. However, the germs in vaccines are either killed or weakened. This means they won't make your child sick and are safe to use.

## Additives

Vaccines may contain:

- a small amount of preservative to protect the vaccine from contamination;
- other additives to make sure that the active vaccine ingredient is evenly mixed throughout the injection mixture; and
- a small amount of aluminium salt, which helps the body to respond better to the vaccine.

The level of additives in vaccines is very low and within internationally recommended levels. These additives do not cause any serious health problems in infants and young children.



## Are vaccines safe?

The vaccines used in Ireland are safe. All medicines can cause side effects, but with vaccines these are usually mild, like a sore arm or leg after the injection, or a slight fever. Serious side effects to vaccines are extremely rare.

Research from around the world shows that immunisation is the safest way to protect your child's health. Your GP (doctor) or practice nurse can discuss the risks with you before giving your child their vaccines.

## Who regulates vaccines in Ireland?

All the recommended vaccines used to protect children in Ireland are licensed by the Health Products Regulatory Authority (HPRA) or the European Medicines Agency. They are licensed for use only when they have been shown to be both safe and effective.

## Where can I find out more about the vaccines used in Ireland?

You can find out more in the:

- Patient Information Leaflet (PIL), which gives a list of ingredients; and
- the Summary of Product Characteristics (SmPC), which contains more detailed information, particularly in Sections 2 and 6.1.

These documents are available on the following websites:

- [www.medicines.ie](http://www.medicines.ie)
- [www.hpra.ie/homepage/medicines/medicines-information/find-a-medicine](http://www.hpra.ie/homepage/medicines/medicines-information/find-a-medicine)
- [www.ema.europa.eu/ema/](http://www.ema.europa.eu/ema/)

You will need to know the name of the vaccines to search these websites. The product name of each vaccine is available on our website [www.immunisation.ie](http://www.immunisation.ie)

## What about the scare stories?

Vaccines don't cause autism, diabetes, multiple sclerosis, allergies, asthma or attention deficit disorder (commonly known as hyperactivity). However, when things happen to our children around the same time as they are immunised we can wrongly presume that there is a link.

In 1998, a controversial UK study was published in *The Lancet* (a highly-regarded medical journal) by Dr. Andrew Wakefield claiming a link between the MMR vaccine and autism.

The signs of autism usually become noticeable at about the age when children are given the MMR vaccine, but one does not cause the other. Because most children get immunised, those who have conditions such as autism, asthma or attention deficit disorder will probably have been immunised as well. Many studies have been done to see if children who have been immunised are more likely to have these conditions. These studies have found no link between the conditions and the vaccines.

## Research into MMR vaccine

Extensive research into the MMR vaccine, involving thousands of children, was carried out in the UK, the USA, Sweden and Finland. This research showed that there is no link between MMR and autism.

One study looked at every child born in Denmark from 1991 to 1998. During that time, 8 out of every 10 children (82%) born in Denmark received the MMR vaccine. The researchers looked at the records of over half a million children and found the risk of autism was the same in immunised children as in children who had not been immunised.

# Common questions about immunisation

**If you are worried about whether your child is fit to be immunised, talk to your GP (doctor), practice nurse or public health nurse.**

## **Are there any children who should not get these vaccines?**

Very few. Your child should not get the vaccine if they have had a very severe reaction (anaphylaxis) to a previous vaccine or to any part of a vaccine.

### **Rotavirus**

Your child should not get rotavirus oral vaccine if they have:

- a history of blocked gut (intussusception);
- a diagnosis of severe combined immunodeficiency (SCID);
- a problem with their gastrointestinal tract (gut) which might increase the risk of a blocked gut;
- a sugar intolerance.

## **Are there any reasons to delay immunisation?**

Very few. If your child has a high fever, wait until your child is better. However, infants and children with minor coughs and colds, or those on antibiotics, can be immunised safely and effectively.

You should delay getting the MMR vaccine at 12 months if your child:

- is on high-dose steroids;
- having chemotherapy or radiotherapy; or
- has an illness or disease that affects their immune system.

## **What if my child was premature, had a low birth weight or had jaundice?**

It is important that premature infants are protected from infectious diseases as they are more at risk of certain infections. In general, premature infants should be immunised as normal.

If your child had a very low birth weight, you should talk to your paediatrician (a doctor who has special training in medical care for children) about the child's immunisation needs.

## **What if my child has a serious disease?**

It is very important that children with serious diseases are immunised because they are often more at risk from complications of infections.

Children with neurological conditions such as cerebral palsy or Down syndrome should be immunised as normal.

However, care is needed if your child's illness, or its treatment, may lower their immunity. Talk to your GP (doctor) about immunisation if your child:

- has cancer;
- has severe combined immunodeficiency (SCID);
- has any other immune deficiency; or
- is taking medicines which may reduce their ability to fight infection.

If your child had a blood transfusion or received blood products, they should not get the MMR vaccine until at least six months after the transfusion.

## **What if my child has asthma, eczema or hay fever?**

Children with asthma, eczema or hay fever should be immunised. Children taking steroids by inhaler or in a low-dose steroid cream should be immunised as normal. If you have any questions, talk to the GP (doctor) or practice nurse giving the immunisation.

## **Can my child get the MMR vaccine if they are allergic to eggs?**

In the past it was believed that children who were allergic to eggs should not get the MMR vaccine. If your child simply dislikes eggs or has diarrhoea or stomach pains after eating eggs, they should still get their MMR vaccine.

Even children with a severe egg allergy should get MMR vaccine.

## **What if my child has epilepsy?**

If their condition is stable, these children should be immunised. Children with a family history of fits or epilepsy should also be immunised as normal.

## **What if my child has had febrile convulsions (fits)?**

Some children get fits (febrile convulsions) if they have a high fever. As some children get a fever after the MenB vaccine which is given at 2 months and 4 months of age (visits 1 and 2), we recommend



that you give your child liquid infant paracetamol after this vaccine. See page 23 for more details on how to give this.

If your child gets a high fever (over 39°C) after the vaccines at 6, 12 and 13 months of age (visits 3, 4 and 5), you can also give them liquid infant paracetamol or infant ibuprofen. Follow the directions on the package.

## **What if my child has recently had, or is due to have, surgery?**

They should still be immunised. Having surgery is not a reason to put off immunisation, and a recent immunisation is not a reason to put off surgery. However, if your child had surgery for a gut problem they should not get the rotavirus oral vaccine at 2 and 4 months of age.

## **What if my child has already had one of these diseases?**

You should still immunise your child. It is important that your child is protected against all the diseases that the vaccine covers, even if the child has caught one of the diseases before.

Children under two years do not get enough natural immunity following illness with Hib, MenC or pneumococcal disease so they should still be immunised.



## **Can my child be immunised while they are in close contact with a pregnant woman?**

Yes. There is no problem with this. In fact, immunising the child will protect the pregnant woman from being exposed to diseases like rubella.

As rotavirus vaccine is an oral vaccine, pregnant women should wash their hands carefully after changing nappies.

## **Can my child use the swimming pool if they haven't finished all their vaccinations?**

Yes. It is perfectly safe for children to start swimming from birth before having their vaccinations. The diseases children are vaccinated against are not carried in water. You can take your child swimming at any time.

## **Do some children also need other vaccines?**

Yes. Some children may need the flu vaccine or hepatitis A vaccine as they are more at risk of infection. These include children who have had their spleens removed or who have cystic fibrosis, Down syndrome, an immune deficiency, chronic heart, lung, liver or kidney disease, sickle cell disease, diabetes or any long-term illness. Talk to your GP (doctor) about this.

If you are travelling to another country, remember to find out if your child needs any special vaccines.

**If you have any questions or doubts, talk to the GP (doctor) or practice nurse giving the immunisation.**



## **My child was born in another country. Do they need to be immunised?**

Yes, children who have moved to Ireland need to follow the Irish immunisation schedule now. This best protects them against diseases more common in Ireland. You should make an appointment with your GP (doctor) or practice nurse and take along any vaccination records your child has from the country they were born in. The GP (doctor) or practice nurse will then tell you which immunisations your child may need.

## **My child was immunised in another country. Do they need to be immunised in Ireland too?**

Yes, you need to take your child's immunisation records to your GP (doctor) or practice nurse. They will see if there are any immunisations that your child has not already had that they should have to best protect them against diseases more common in Ireland.

## **I have lost my child's immunisation passport. What should I do?**

You can order a new immunisation passport free of charge at [www.healthpromotion.ie](http://www.healthpromotion.ie) You will need to contact your GP (doctor) or local health office to request a list of the vaccines your child has already received.

**Immunisation against infectious disease has saved more lives than any other public health activity apart from providing clean water.**

# Common questions after immunisation

**What common reactions can my child get after being vaccinated and what should I do?**

Common reaction	What to do
<p><b>At 2 and 4 months (Visits 1 and 2)</b></p> <p>Fever is common after MenB vaccine</p>	<ul style="list-style-type: none"><li>• Give 2.5 mls (60 mg) of liquid infant paracetamol at the time, or shortly after, the vaccine is given.</li><li>• Give a second dose of 2.5 mls (60 mg) 4 - 6 hours later.</li><li>• Give a third dose of 2.5 mls (60 mg) 4 - 6 hours after the second dose.</li><li>• Use the syringe in the bottle to measure the dose.</li><li>• If your child is well but still has a fever, give a fourth dose of 2.5 mls (60 mg) 4 - 6 hours after the third dose.</li><li>• If your child weighed less than 3.5 kg (7 lb 7 oz) at their 6 week check, talk to your GP (doctor) about how much infant paracetamol to give.</li></ul>

<p>Soreness, swelling and redness in the area where the injection was given</p>	<ul style="list-style-type: none"> <li>• Make sure clothes are not too tight or rubbing against the area where the injection was given.</li> </ul>
<p>Mild diarrhoea after the rotavirus oral vaccine</p>	<ul style="list-style-type: none"> <li>• Give your child plenty of milk and make sure they stay well hydrated.</li> <li>• Wash your hands carefully after changing and disposing of your child's nappy.</li> </ul>

### Remember

- **Only give liquid infant paracetamol to reduce the fever.**
- **If your child is very unwell after getting a vaccine, they may be sick for some other reason. Talk to your GP (doctor) about this.**

### **At 6, 12 and 13 months (Visits 3, 4 and 5)**

Soreness, swelling and redness in the area where the injection was given

- Give liquid infant paracetamol or infant ibuprofen to relieve aches and pains. Follow the directions on the package.
- Make sure clothes are not too tight or rubbing against the area where the injection was given.

<p>Fever (over 39°C) or your child feels much hotter than normal</p>	<ul style="list-style-type: none"> <li>• Do not put too many clothes or covers on your child.</li> <li>• Make sure their room isn't too hot.</li> <li>• Give extra cooled boiled water or milk to drink.</li> <li>• Give liquid infant paracetamol or infant ibuprofen to relieve aches and pains. Follow the directions on the package.</li> </ul>
<p>Headache or irritability</p>	<ul style="list-style-type: none"> <li>• Give liquid infant paracetamol or infant ibuprofen to lower the fever. Follow the directions on the package.</li> </ul>

## Remember

- Your child does not routinely need liquid infant paracetamol after their vaccines at 6, 12 and 13 months old. Only give it if your child has a fever, headache or is irritable.
- **If your child is very unwell after getting a vaccine, they may be sick for some other reason. Talk to your GP (doctor) about this.**
- Some children get a fever 6 to 10 days after getting the MMR vaccine. If this happens to your child, give liquid infant paracetamol or ibuprofen.

When buying liquid infant paracetamol or liquid infant ibuprofen for your child, ask your pharmacist for a sugar-free liquid that is suitable for your child's age.

**Using liquid infant paracetamol or liquid infant ibuprofen over a long time without advice from a doctor may be harmful.**



## **How soon after the rotavirus oral vaccine can I feed my child?**

You can feed your child at any time before or after the rotavirus oral vaccine.

## **What if my child has an allergic reaction to vaccines?**

Serious allergic reactions to vaccines are extremely rare. About one child out of one million may have a serious allergic reaction. Serious allergic reactions usually happen within a few minutes of receiving the vaccine.

Signs of a serious allergic reaction include difficulty breathing, hoarseness, wheezing, paleness, weakness, a fast heartbeat, dizziness and swelling of the throat. If the reaction is treated quickly, the child will recover fully. Doctors and nurses who give immunisations are trained to deal with allergic reactions.

## **Could my child suffer any side effects from the vaccines?**

The main side effects from vaccines are tenderness, swelling or pain where the injection was given, or a mild fever. Most of these minor side effects happen in the first day or two after immunisation and children usually recover within a day or two. However, after the MMR vaccine, some children may get a fever or a rash six to 10 days later (called 'mini-measles'). This is not contagious.

The Health Products Regulatory Authority (HPRA) monitors all reported side effects of vaccines in Ireland. Other countries also monitor side effects. This is so they can detect new or rare side effects quickly and take any action that may be necessary.

If your child has any side effects after immunisation, let your GP (doctor) know so that he or she can report it to the Health Products Regulatory Authority (HPRA).



## If my child was unwell after the last dose of vaccine, should they get the next dose?

Some children may be unwell after their immunisation. Usually there is no reason not to finish the course of vaccine. However, if your child had a serious allergic reaction (that is, difficulty breathing, hoarseness, wheezing, paleness, weakness, a fast heartbeat, dizziness and swelling of the throat), they should not get that vaccine again. Talk to the GP (doctor) about the reaction.





# The diseases and the vaccines that protect against them



## How serious are these diseases?

Any of these diseases can kill a child or an adult. It's easy to forget how serious they are because – thanks largely to vaccines – we don't see them nearly as much as we used to.

Measles used to kill thousands of people in Europe and the United States every year. In the 1940s and 1950s, tens of thousands of children were crippled or killed by polio. As recently as the mid-1980s, 100 children a year in Ireland suffered from meningitis and other serious complications as a result of Hib infection.

Meningococcal B disease causes 1 to 2 deaths in young children in Ireland each year. This is why the MenB vaccine has been introduced into the childhood immunisation schedule.

These diseases have not changed. They can still cause dehydration, pneumonia, choking, meningitis, brain damage and heart problems in children who are not protected. These diseases still kill children in many parts of the world, even in Ireland.

**The next few pages tell you more about the diseases and the vaccines which protect your child against these diseases.**

# The diseases and the vaccines that protect against them

Disease	Effect of disease	Side effects of the vaccine
<p><b>Diphtheria</b> – contagious bacteria spread by close contact with an infected person or carrier and which causes a sore throat and severe breathing difficulties.</p>	<p>If 1,000 people get diphtheria:</p> <ul style="list-style-type: none"> <li>• 50 will die.</li> </ul> <p>The bacteria release a toxin (poison) which can lead to paralysis and heart failure.</p>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> </ul>
<p><b>Haemophilus influenzae type b (Hib)</b> – contagious bacteria spread by close contact with an infected person and which cause meningitis (inflammation of the lining around the brain), epiglottitis (swelling in the throat that causes choking), septicaemia (blood poisoning) and osteomyelitis (infection of the bone).</p>	<p>If 1,000 people get Hib meningitis:</p> <ul style="list-style-type: none"> <li>• 50 will die.</li> <li>• 250 will have permanent brain damage or deafness.</li> </ul> <p>If 1,000 people get Hib epiglottitis (swelling in the throat that causes choking):</p> <ul style="list-style-type: none"> <li>• 10 will die.</li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 200 will have discomfort, redness and swelling where the injection was given.</li> <li>• 20 will have a fever.</li> </ul>
<p><b>Hepatitis B</b> – contagious virus spread by contact with the blood or other body fluid of an infected person and which causes liver disease. Children have a higher risk of having hepatitis B infection for life.</p>	<p>If 1,000 people get chronic hepatitis B infection:</p> <ul style="list-style-type: none"> <li>• 250 will die from scarring of the liver (cirrhosis) or liver cancer.</li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> </ul>

This table (up to page 57 inclusive) sets out:

- the description of the diseases
- the effects of the disease and
- the possible side effects of the vaccine



Disease	Effect of disease	Side effects of the vaccine
<p><b>Measles</b> – highly contagious virus spread by close contact with an infected person and which causes fever, a cough and a rash.</p> 	<p>If 1,000 people get measles:</p> <ul style="list-style-type: none"> <li>• 1 or 2 will die.</li> <li>• 50 will get an ear infection.</li> <li>• 40 will get pneumonia or bronchitis.</li> <li>• 5 will have convulsions (fits).</li> <li>• 160 will get diarrhoea.</li> <li>• 1 will develop encephalitis (inflammation of the brain).</li> </ul> <p>For every 10 children who develop encephalitis:</p> <ul style="list-style-type: none"> <li>• 1 will die</li> <li>• Up to 4 will have brain damage.</li> </ul> <p>1 in 8,000 children under two years of age get SSPE (brain degeneration), which may be many years after measles and is always fatal.</p>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> <li>• 50 will get a rash six to 10 days later (this is not contagious).</li> <li>• 1 will have a convulsion (fit).</li> </ul> <p>1 in 10 million will develop encephalitis (inflammation of the brain).</p> <p>1 in 22,000 will get a temporary blood clotting problem.</p>

# The diseases and the vaccines that protect against them

Disease	Effect of disease	Side effects of the vaccine
<p><b>Meningococcal B (MenB)</b>                      – contagious bacteria spread by saliva or close contact with an infected person or carrier and which cause meningitis or septicaemia, or both. (The MenB vaccine does not protect against other types of meningitis.)</p>	<p>If 1,000 people get MenB disease:</p> <ul style="list-style-type: none"> <li>• 50 will die.</li> <li>• 100 people who recover from meningococcal disease will have a major disability such as deafness, brain damage or loss of fingers, toes, hands, feet, arms or legs.</li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 500 will have a fever.</li> <li>• 100 will have discomfort, redness and swelling where the injection was given.</li> <li>• 10 will have a high fever.</li> </ul>
<p><b>Meningococcal C (MenC)</b> – contagious bacteria spread by saliva or close contact with an infected person or carrier and which cause meningitis or septicaemia, or both. (The MenC vaccine does not protect against other types of meningitis, including that due to Meningococcal B disease.)</p>	<p>If 1,000 people get MenC disease:</p> <ul style="list-style-type: none"> <li>• 50 will die.</li> <li>• 100 people who recover from meningococcal disease will have a major disability such as deafness, brain damage or loss of fingers, toes, hands, feet, arms or legs.</li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 50 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> <li>• 500 will become irritable.</li> <li>• 10 will get a tummy upset or vomit.</li> </ul>



Disease	Effect of disease	Side effects of the vaccine
<p><b>Mumps</b> – contagious virus spread by close contact with an infected person and which causes swollen neck glands and a fever.</p>	<p>If 1,000 people get mumps:</p> <ul style="list-style-type: none"> <li>• 50 will get viral meningitis.</li> <li>• 1 will get encephalitis (inflammation of the brain).</li> <li>• 400 men who have mumps will get swollen testicles.</li> <li>• 300 will get fever, a headache, and swollen salivary glands under the jaw.</li> </ul> <p>1 in 20,000 will become deaf.</p> <p>Mumps can also rarely cause infertility in men.</p>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> <li>• 10 will develop swelling of the salivary glands under the jaw in the third week after immunisation (this is not contagious).</li> </ul> <p>1 in 10 million may get encephalitis (inflammation of the brain).</p>
<p><b>Pertussis (whooping cough)</b> – contagious bacteria spread by close contact with an infected person and which cause a ‘whooping’ cough and vomiting. The disease can last up to three months.</p> 	<p>If 1,000 people get whooping cough:</p> <ul style="list-style-type: none"> <li>• 2 will die from pneumonia or brain damage (almost all deaths are in children under the age of 6 months).</li> <li>• 10 will have fits (15 if under 6 months old).</li> <li>• 1 will get encephalitis (inflammation of the brain) (2 if under 6 months old).</li> <li>• 50 will get pneumonia (100 if under 6 months old).</li> <li>• 200 will need to go into hospital.</li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> </ul> <p>4 in 10,000 will cry for more than three hours after immunisation.</p> <p>1 in 10,000 will have a convulsion (fit).</p>



# The diseases and the vaccines that protect against them

Disease	Effect of disease	Side effects of the vaccine
<p><b>Pneumococcal disease</b> – contagious bacteria spread by close contact with an infected person or carrier, and which cause invasive disease such as pneumonia, meningitis and septicaemia (blood poisoning).</p>	<p>If 1,000 people develop invasive pneumococcal disease:</p> <ul style="list-style-type: none"> <li>• 250 will develop pneumonia.</li> <li>• 250 will develop meningitis.</li> <li>• 100 will die.</li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> </ul>
<p><b>Polio</b> – contagious virus spread by close contact with an infected person or their faeces (poo). It causes fever, headache and vomiting and may progress to paralysis.</p>	<p>If 1,000 people get polio:</p> <ul style="list-style-type: none"> <li>• Up to 10 will become paralysed. Of these 10 people with paralysis:               <ul style="list-style-type: none"> <li>– 5 will be permanently paralysed, and</li> <li>– 1 may die.</li> </ul> </li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> </ul>
<p><b>Rotavirus</b> – contagious virus spread by close contact with an infected person, nappy changing coughing, and sneezing.</p> 	<p>By the age of 5 years children will have had vomiting and diarrhoea from rotavirus.</p> <p>If 1,000 children get rotavirus:</p> <ul style="list-style-type: none"> <li>• 1,000 get vomiting and diarrhoea.</li> <li>• 3 will need to be admitted to hospital for treatment.</li> <li>• Young children need to stay in hospital for an average of 5 days, if they are admitted.</li> </ul>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have mild diarrhoea.</li> <li>• 10 will have tummy pain.</li> <li>• 10 will have inflamed skin.</li> </ul>





Disease	Effect of disease	Side effects of the vaccine
<p><b>Rubella (German measles)</b> – contagious virus spread by close contact with an infected person and which causes a rash, fever and swollen glands. It may cause major birth defects in the child if the mother gets rubella in early pregnancy.</p>	<p>If 1,000 mothers develop rubella in early pregnancy:</p> <ul style="list-style-type: none"> <li>• 900 children will have a major birth defect (such as deafness, blindness, brain damage or heart defects).</li> </ul> <p>If people get rubella:</p> <ul style="list-style-type: none"> <li>• 1 in 3,000 get thrombocytopenia (bruising or bleeding of the skin).</li> <li>• 1 in 6,000 get encephalitis (inflammation of the brain).</li> <li>• 1 in 2 will get a rash and painful swollen glands</li> </ul> <p>More than half of women with rubella get painful joints</p>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> <li>• 50 will get swollen glands, a stiff neck, or joint pains.</li> <li>• 50 will get a rash (which is not contagious).</li> </ul> <p>1 in 25,000 will get bruising or bleeding.</p> <p>1 in 10 million may get encephalitis (inflammation of the brain).</p>
<p><b>Tetanus</b> – bacteria from soil which releases a toxin and cause painful muscle spasms, convulsions and lockjaw.</p>	<p>If 1,000 people get diphtheria:</p> <ul style="list-style-type: none"> <li>• 50 will die.</li> </ul> <p>The bacteria release a toxin (poison) which can lead to paralysis and heart failure.</p>	<p>If 1,000 people are immunised:</p> <ul style="list-style-type: none"> <li>• 100 will have discomfort, redness and swelling where the injection was given or will have a fever.</li> </ul>

# School immunisation programme

Children need to get booster doses of some vaccines in school to protect them against these diseases.

When your child **starts primary school** they will get two vaccines:

- the 4 in 1 booster to protect against diphtheria, pertussis (whooping cough), polio and tetanus; and
- a second dose of the MMR vaccine to protect against measles, mumps and rubella.

These vaccines are given by a HSE doctor or nurse in school or in some areas by your GP (doctor).

When your child is in **first year of second level school** they will get two vaccines:

- a tetanus, diphtheria and pertussis (whooping cough) booster vaccine; and
- a MenC booster vaccine.

These vaccines are given by a HSE doctor or nurse in school.

When your **daughter is in first year of second level school** she will get the HPV (human papillomavirus) vaccine, to protect against cervical cancer.

Usually, two doses of this vaccine will be given over six to twelve months. This vaccine is given by a HSE doctor or nurse in school.



When these vaccines are given in school, the HSE will let you know the date of immunisations. If your child misses that immunisation in school, the HSE will arrange for your child to be vaccinated at a clinic.

**In Ireland, all the recommended childhood immunisations listed in the school immunisation schedule are free.**

For more information please see [www.immunisation.ie](http://www.immunisation.ie)



# Where can I get more information?

If you have questions about your child's immunisation, it is best to talk with your GP (doctor), practice nurse or the public health nurse at your local health clinic.

For general information about immunisation and vaccines, including links to the Immunisation Guidelines for Ireland and immunisation resources in other countries, visit **[www.immunisation.ie](http://www.immunisation.ie)**

You can also get information about immunisations from:

## **HSE**

### **National Immunisation Office**

Unit 8/9 Manor Street Business Park, Manor Street, Dublin 7.

Phone: 01 867 6108

Website: [www.immunisation.ie](http://www.immunisation.ie)

### **Health Protection Surveillance Centre**

25-27 Middle Gardiner Street, Dublin 1.

Phone: 01 876 5300

Website: [www.hpsc.ie](http://www.hpsc.ie)

Other useful websites:

[www.hpra.ie/homepage/medicines/medicines-information/find-a-medicine](http://www.hpra.ie/homepage/medicines/medicines-information/find-a-medicine) and [www.ema.europa.eu/ema/](http://www.ema.europa.eu/ema/)

The information in this guide is the most up to date information available at this time.

# Notes

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