

Vaccines and myeloma

Treatments and tests Infosheet

This Infosheet provides information on how vaccines work, the different types of vaccines and the vaccines that are recommended for myeloma patients.

How do vaccines work?

Vaccines are treatments which boost the body's immune system and help to protect the body against specific infections. They work by stimulating the immune system to produce antibodies (also known as immunoglobulins) against an infection without actually causing the infection itself. If the vaccinated person then comes into contact with that particular

infection, their immune system will recognise it and produce the antibodies needed to fight it.

What is the immune system?

The immune system is made up of specialised cells, tissues and organs which work together to protect the body from foreign organisms (such as bacteria or viruses) that enter the body.

White blood cells are important components of the immune system. Plasma cells are a type of

white blood cell produced in the bone marrow. Plasma cells make antibodies and release them into the bloodstream.

Antibodies fight infection by helping to kill bacteria and viruses and by building up immunity to disease.

The immune system, vaccines and myeloma

In a healthy immune system, a mixture of different types of antibody is produced, each of which plays a specialised role in fighting infection.

In myeloma, a large amount of a single type of abnormal antibody called paraprotein is produced.

Paraprotein plays no useful role in the body and reduces the production of normal antibodies.

This means that myeloma patients have a weakened immune system and therefore a reduced ability to fight infection, including vaccine-preventable infections.

It is therefore recommended that myeloma patients are vaccinated against certain vaccine-preventable infections.

Unfortunately, because of their weakened immune system myeloma patients have a reduced ability to respond to vaccination.

Therefore the immunity provided by vaccines may be less than in a healthy individual.

Nevertheless, vaccination is still recommended for myeloma patients in the hope that they will gain at least some immunity.

Types of vaccine

The two main types of vaccine are:

- **Live vaccines** (also known as attenuated vaccines) contain a version of a living virus or bacterium that has been weakened in the laboratory so that it will cause no or a very mild infection
- **Inactivated vaccines** contain only a part of a virus or bacterium which has been killed with chemicals, heat or radiation

It is recommended that myeloma patients do not have live vaccines.

This is because their weakened immune system may not be able to mount a sufficient immune response even to the very small amounts of live but weakened bacterium or virus contained within the vaccine.

This means they would be at risk of developing the actual infection.

Some of the most common live vaccines which are **NOT** recommended for myeloma patients are:

- Shingles
- Chicken pox (Varicella)
- Live influenza vaccine (nasal spray)
- BCG (Tuberculosis)
- Measles
- MMR (Measles, Mumps and Rubella)
- Oral typhoid
- Rubella (German measles)
- Yellow fever

Inactivated vaccines are safe for myeloma patients. Inactivated vaccines include:

- Influenza (injection only)
- Pneumococcal
- Diphtheria, tetanus and polio (DTP)
- Haemophilus influenza B (Hib)
- Hepatitis A
- Hepatitis B
- Meningococcal meningitis
- Typhoid injection (but **NOT** the vaccine given by mouth)

- Whooping cough (pertussis)

Which inactivated vaccines are all myeloma patients recommended to have?

Flu vaccine

It is recommended that all myeloma patients get the seasonal flu (influenza) vaccine from their GP every year. Usually the vaccine is available from September to the end of January. New flu vaccines are produced every year because the viruses that cause flu rapidly change. An annual vaccine is therefore developed to protect against the strains of flu virus most likely to be circulating over the forthcoming winter.

If you are currently on treatment for your myeloma, you should discuss with your haematologist when would be the best time to be vaccinated – they may advise to have the vaccine during the rest days of a treatment cycle, or when our current myeloma treatment has come to an end.

2016 guidance from the Department of Health and Social Care recommends that close family members of people with a weakened immune system – such as myeloma patients – also get the annual flu vaccine.

Pneumococcal vaccine

It is also recommended that all myeloma patients get the pneumococcal vaccine **every five years**. This vaccine protects against serious infections such as some types of pneumonia, meningitis, and septicaemia.

It can often be given at the same time as your flu vaccine to save you having to make two separate appointments.

For the best protection myeloma patients require two different pneumococcal vaccines. It is recommended that patients receive a first vaccination of PCV13 (pneumococcal conjugate vaccine 13) and then another vaccine PPV23 (pneumococcal polysaccharide vaccine 23), two or more months afterwards. A single standard pneumococcal vaccine may be enough, but the ideal is to have the double vaccination.

Myeloma is rare enough that your GP practice may not be aware of this recommendation so you may wish to show them this information.

Again, if you are currently on treatment for your myeloma, you should discuss with your haematologist when would be the best time to be vaccinated – they may advise to have the vaccine

during the rest days of a treatment cycle, or when your current myeloma treatment has come to an end.

Repeat childhood vaccines following high-dose therapy and stem cell transplantation

If you have received high-dose therapy and a stem cell transplant (HDT-SCT), you may no longer be immune to some diseases you were vaccinated against as a child, and you may need to be re-vaccinated.

It is important to note that each hospital will have their own guidelines and recommendations on the vaccines you should receive after the different types of stem cell transplant.

You may be considered for re-vaccination against the diseases outlined in Table 1 on page 5*.

* Please note that some vaccinations require a number of doses. The vaccines are given either as a single (e.g. influenza) or a combined (e.g. diphtheria tetanus-pertussis) vaccine.

Months post-transplant	Vaccine
4 – 6 months then annually thereafter	● Flu (influenza)
6 – 12 months	<ul style="list-style-type: none"> ● Polio ● Diphtheria-tetanus-pertussis ● H. influenzae type B (Hib) ● Pneumococcal (PCV13 then PPV23 two to three months after) ● Meningococcal group C (often given first as a Hib/MenC combined vaccine, then MenACWY one month after)

Table 1: Possible recommendations for repeat childhood vaccines following high-dose therapy and stem cell transplantation

Travel vaccination

If you are planning on travelling to certain countries, it may be advised to have certain vaccines against some of the serious diseases found in other parts of the world.

Some of these vaccines will be live vaccines, however, which should be avoided by myeloma patients.

You should speak to your doctor or nurse about travel vaccines at least six weeks before you travel and ensure you discuss your myeloma and any current treatment you are on.

Avoiding infection from others

No vaccine gives 100% protection. In addition, because myeloma patients have a weakened immune system, they may be at slightly higher risk of catching infections like flu even when they have been vaccinated. However, you can minimise the risk by simple precautions such as being vigilant about hand washing, and as far as possible avoiding close contact with people who have infections.

For more information see the **Infection and Myeloma Infosheet** from Myeloma UK

Vaccinations for close contacts of myeloma patients

It is recommended that family members and close contacts of immunosuppressed patients are fully vaccinated according to normal routines, to help protect the patient. They are also likely to be offered extra vaccines: the annual flu vaccine, and (if relevant) the measles-mumps-rubella (MMR) and chicken pox (varicella) vaccines.

Risk of vaccine-induced infection from others

A concern sometimes raised by family members of myeloma patients is whether they could pass on infection to the patient after having a live viral vaccine, such as the shingles vaccine.

The basis for this concern is that when someone has a live viral vaccine, they can shed small amounts of vaccine virus via their body fluids (such as saliva, blood, faeces or the blisters of a skin rash) for a short while following vaccination.

There are several precautions that myeloma patients can take to minimise this risk (see below). If these precautions are taken, in most cases live vaccines can safely be given to close contacts

of patients. Vaccinations for close contacts are valuable in reducing risk of disease. However, myeloma patients who are highly immunocompromised (such as after HDT-SCT) will be at greater risk. These patients need to take extra precautions against infection.

Annual flu vaccine

The annual flu vaccine is recommended for family and friends of (or those close to) immunosuppressed patients (including children given the live attenuated nasal spray). The risk of the virus being passed on is low, but to err on the side of caution we would suggest that myeloma patients avoid close contact with children who have had the live vaccine for up to two weeks.

If it is difficult to avoid contact completely, it may be wise for you to avoid very close physical contact (e.g. hugs and kisses) with the child. You should also be especially diligent about hand hygiene for a week or two following their flu nasal spray vaccination.

A specific case would be patients who are severely immunocompromised (such as after HDT-SCT) and who can't avoid close contact with children who are having the flu vaccine. Children in

this case should normally be given the flu vaccine by injection rather than live nasal spray.

Shingles and varicella

In the case of the shingles vaccine, spreading of the vaccine virus (chickenpox virus) is only possible if blisters form at the vaccination site (i.e. the upper arm). This occurs rarely and the risk is lessened because the vaccine virus has been weakened in the laboratory, and is therefore less infective. If any blisters appear at the vaccine site they should be covered to prevent the spread of infection.

There have been rare cases where people receiving the varicella (chicken pox) vaccine have developed a chicken-pox type rash which may have led to infection of close contacts. If someone in your family develops a rash after the varicella vaccine, you should avoid close contact with them until the rash is dry and crusted over, and they should cover the rash if possible.

Rotavirus

As part of the routine vaccination programme in the UK, babies aged 8–12 weeks are offered an oral rotavirus vaccine (a live vaccine). It is possible that traces of the

vaccine virus will shed into the baby's nappy. As a precaution, immunocompromised myeloma patients in close contact with recently vaccinated babies should take special care with personal hygiene, including regular washing of hands and avoiding nappy changes if possible.

MMR (Measles-Mumps-Rubella)

There is no evidence of the MMR vaccine transferring infection to close contacts of the person receiving the vaccine.

If someone close to you is due to have a live viral vaccine, talk things through with your haematologist or clinical nurse specialist, who can give you advice relevant to your own situation.

About this Infosheet

The information in this Infosheet is not meant to replace the advice of your medical team. They are the people to ask if you have questions about your individual situation.

For a list of references used to develop our resources, visit myeloma.org.uk/references

To give feedback about this publication, email myelomauk@myeloma.org.uk or fill in a short survey at myeloma.org.uk/pifeedback

Other information available from Myeloma UK

Myeloma UK has a range of publications available covering all areas of myeloma, its treatment and management. Download or order them from myeloma.org.uk/publications

To talk to one of our Myeloma Information Specialists about any aspect of myeloma, call our Myeloma Infoline on **0800 980 3332** or **1800 937 773** from Ireland.

The Infoline is open from Monday to Friday, 9am to 5pm and is free to phone from anywhere in the UK and Ireland.

Information and support about myeloma is also available around the clock at myeloma.org.uk

Notes

Notes

Notes



Treatments and tests Infosheet:
Vaccines and myeloma



We're here for everything a diagnosis of myeloma brings

Get in touch to find out more about how we can support you

Call the Myeloma Infoline on

 **0800 980 3332**

Email Ask the Nurse at

 **AskTheNurse@myeloma.org.uk**

Visit our website at

 **myeloma.org.uk**

Myeloma UK

22 Logie Mill, Beaverbank Business Park,
Edinburgh EH7 4HG

 0131 557 3332

 myelomauk@myeloma.org.uk

Registered Charity No: SC026116



Published by:	Myeloma UK
Publication date:	February 2015
Last updated:	May 2019
Review date:	May 2022

Myeloma Awareness Week • 21–27 June