



Meningitis:

The battle to defeat the disease

Meningitis and septicaemia are deadly diseases that strike without warning. Meningitis is the swelling of the meninges, which is the lining around the brain and spinal cord, caused mainly by bacteria entering the body. Septicaemia is blood poisoning caused by the same bacteria that can cause meningitis. Collectively, meningitis and neonatal sepsis are the second biggest infectious killers of children aged under five globally.

Meningitis Research Foundation (MRF) is a charity that is working tirelessly to overcome meningitis and septicaemia globally, supporting and funding research into how to defeat the disease. MRF also provides support to people affected by the illness, whether they are living with bereavement, or coping with the after-effects of meningitis.

MRF has set itself clear goals for future years, including improving the rate of prevention, providing better diagnosis and treatment, and creating an easily accessible infrastructure of information and support. We spoke

with Vinny Smith from the MRF to find out more about meningitis and the MRF's mission.

Hi Vinny! Can you tell us about the Meningitis Research Foundation (MRF) in terms of its history, background, mission and core principles?

MRF is a leading charity working to defeat the disease wherever it exists. For thirty years, we have supported vital scientific research, campaigned to improve awareness of the disease and make life-saving vaccines available and provided information to health professionals. We also provide direct support to individuals and families

affected, whether they are living with impairment caused by the diseases or coping with the death of a loved one.

What does your role involve at MRF?

Since joining in 2015, I've led the team to launch a new strategy, brand identity, and website. We've held governments to account on vaccine policy and called for and achieved a new World Health Organisation global task force for meningitis to 2030.

For those that aren't entirely familiar with the condition, can you briefly explain what exactly meningitis is? What's the crossover between

Research into why some get meningitis while others don't is underway.



meningitis and septicaemia?

Meningitis is the swelling of the lining of the brain and the spinal cord. It is usually caused by bacteria or viruses. Bacterial meningitis is a life-threatening infection. Septicaemia is a high level of bacteria in the blood causing blood poisoning which triggers sepsis, which is also life threatening.

There's a residual belief that it's only young children who suffer from meningitis. Can you tell us more about the actual figures in terms of age groups?

Anyone can get meningitis, but babies, young children and older teens are the highest risk age groups. MRF estimates that each year there are nearly 2,500 UK cases of bacterial meningitis and meningococcal disease. Viral meningitis is more common, but since people can recover from the viral form without medical treatment it is difficult to estimate how many cases occur each year.

What's the key to a healthy recovery from meningitis?

Swift diagnosis, treatment and good quality aftercare all play a part in whether people recover as well as they can following meningitis. We work

with health professionals on all three, to improve a patient's experience and to minimise after-effects.

It can take many months to recover from meningitis, and sometimes people have permanent health changes such as deafness, brain injury, and limb-loss. It's essential that people receive good aftercare to help them make the best recovery.

Why is it so important to catch meningitis early?

Meningitis and septicaemia are

Access to accurate data that tells the full story of meningitis will help national governments and inter-governmental institutions, such as the agencies of the United Nations, to create informed health strategies and monitor their success.

In 2011, Meningitis Research Foundation supported the establishment of a Meningococcal Genome Library (MRF-MGL): a free online resource within PubMLST that provides a complete genetic blueprint of every meningococcus isolated as a cause of meningitis and septicaemia

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fast-acting and can prove fatal in just a few hours. If they are diagnosed and treated early, the risk of permanent health losses is reduced.

In terms of research, what's MRF's current focus and plans to tackle the issue?

in the UK between 2010 and 2015. This marked a world first and has proved to be a valuable and lifesaving resource accessed by researchers the world over.

In recognition of the fact that meningitis is a global issue that urgently needs addressing, we are working with



Babies are one of the highest risk age groups for meningitis.



Vinny Smith, CEO of MRF.

They can occur together or separately and can be very difficult to distinguish. According to the United Nations' 2017 Levels and Trends in Child Mortality Report, meningitis and neonatal sepsis are together the second biggest infectious killer of under-fives globally. However, despite this progress in tackling meningitis lags behind that of other infectious diseases. We recently worked on an analysis showing this in the journal *The Lancet Neurology*.

Currently, we know that data on the global meningitis burden are hard to interpret. This is due in part to there being multiple causes of the disease, and because the data come from many different sources. We are developing a Meningitis Progress Tracker where we will be able to track national and global progress toward defeating the disease. For the first time, we will bring together 'the story of meningitis' in one place.

Is meningitis becoming more resistant to treatment?

The current treatments are effective but like any other bacterial infection, the bacteria which cause meningitis can become resistant to antibiotics, and new strains of meningitis causing bacteria are emerging which are not vaccine-preventable. Disease surveillance is key in order to identify potential resistance and guide research

a group of international experts, involving existing genome repositories, towards a Global Meningitis Genome Partnership that expands beyond the meningococcus to include all four pathogens that are the focus of the WHO Global Roadmap to defeat meningitis by 2030. We want to engage countries around the world

timely public health intervention to forestall or curb epidemics, and for facilitating vaccine development and evaluation, showing how the diseases evolve and move around the world.

Another of our focuses is data. Currently, meningitis isn't being prioritised and that is linked

Swift diagnosis, treatment and good quality aftercare all play a part in whether people recover.

in the global, genomic surveillance of bacterial meningitis to enable a global overview of sequence data, which is essential for international coordination of strain identification and tracking,

to difficulties with the data. Meningitis is a globally important disease, especially for children under five. Many of the major bacterial pathogens that cause meningitis also cause sepsis.



As meningitis acts fast, vaccination is key to prevent death and after effects.

into developing effective treatments and preventative vaccines.

What factors play a part in whether people develop meningitis?

This is one of the great unanswered questions about the disease. We do know that about one in ten of us carry the bacteria that most commonly causes the disease at the back of our nose and throats but we do not yet fully understand why the bacteria should cause only a few people to develop the disease. Research, of course, is key to understanding more about this complex illness.

Which groups should consider vaccination?

In the UK, babies are offered vaccines that protect against Haemophilus influenzae type b, 13 strains of pneumococcal bacteria and certain types of meningococcal bacteria (MenB and MenC). Teenagers and young adults are eligible for a vaccine that protects against four types of meningococcal bacteria (MenACWY). Everyone eligible for vaccination should protect themselves and others by taking up the offer.

Do you think we'll ever be living in a world without meningitis?

MRF's vision is towards a world free of meningitis and septicaemia. It is

possible to substantially reduce the number of cases, but unfortunately, meningitis will never be completely eradicated as it has so many causes. Our aim is to defeat meningitis as a public health threat and defeat its after-effects. To achieve this we need to work together globally to develop effective vaccines, rapid diagnostic tests, appropriate treatment and aftercare.

To what extent is educating people about meningitis important? Should this education be as widely disseminated as stroke and heart attack training?

Early meningitis signs and symptoms are similar to that of flu, but someone with meningitis will rapidly deteriorate. Education is key so people know when to seek medical help. Through our website, support services, ambassador network, and awareness days we work to educate and inform the public of the symptoms.

Education about the benefits of vaccination is also crucial. We produce vaccine information for parents, the public and health professionals.

Can you tell us more about the Wilton Park Report and its global implications?

At Wilton Park, MRF organised a three-day summit of leading experts in meningitis and septicaemia to start a process to create an action plan

to 2030 aligned to the UN Sustainable Development Goals.

The summit report called for a new plan for meningitis that inherits the success of the past two decades and looks to address the challenges of the next years to 2030. MRF is now working with WHO and senior health officials, global health organisations, patient groups and pharmaceutical companies on the plan to defeat the disease.

How can people get involved?

We're always looking for people to support us, we have many fundraising challenges, and people can do their own thing or donate via the website. Follow us on social media to support our work to defeat meningitis and help us raise awareness.



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