

MENINGOCOCCAL DISEASE IN EUROPE:



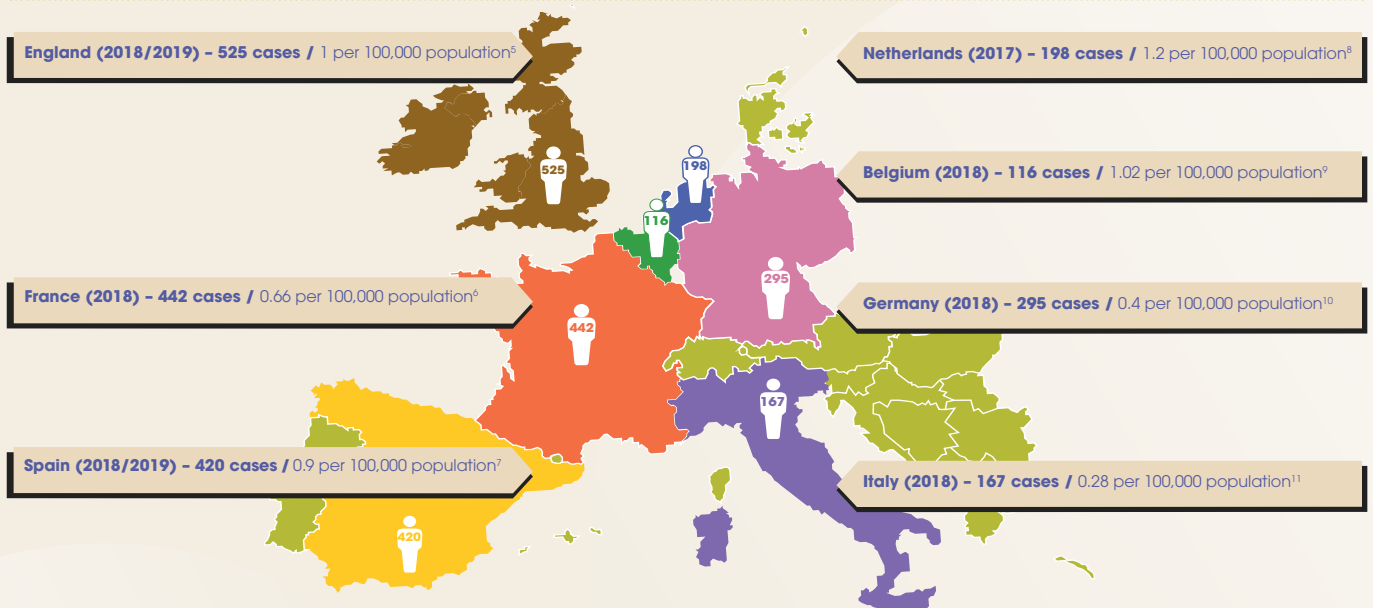
up to **10-20%** of survivors suffer from **serious complications** and sequelae

A RARE BUT DEVASTATING DISEASE

Invasive Meningococcal Disease (IMD) is a bacterial infection caused by *Neisseria meningitidis*. It commonly presents as an inflammation of the brain (meningitis) and infection of the blood (septicemia or blood poisoning).^{1,2}

It can claim a life in as little as **24 hours**. **One in 10 people** who develop the disease will die from it and **up to 10-20%** of survivors suffer from serious complications and sequelae such as amputation, scars, deafness or brain damage.¹ In addition IMD cases lead to significant while underestimated **lifetime costs** for society.^{3,4}

Cases of invasive meningococcal disease (IMD) across Europe



SPREAD THROUGH DROPLETS

IMD is **spread through respiratory droplets** (e.g. coughing, sneezing) and direct contact with someone who is infected (e.g. kissing). **About 1 in 10 people (1 out of 4 in adolescence)** have meningococcal bacteria in the back of their nose or throat with no signs or symptoms of the disease; this is known as being **'a carrier'**.¹ Fortunately, meningococcal disease is not as easily transmitted as other infections such as influenza (flu).¹

While the disease **mainly affects children** below the age of five, adolescents and young adults, it can affect **anyone, anywhere** in the world.¹

Increased risk factors include:^{12,13,14,15}

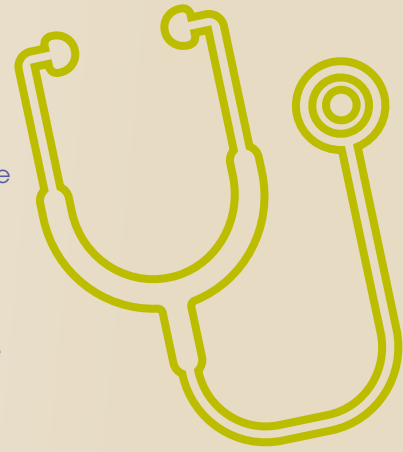
- Living in **community settings** (e.g. military, children at summer camp and college students in dormitories) or participating in **mass gathering events** such as Olympic Games and the Hajj,
- Certain **medical conditions**, including HIV infection / asplenia / a compromised immune system / deficiencies of either immunoglobulins or complement
- **Travelling to endemic areas** such as the meningitis belt in sub-Saharan Africa



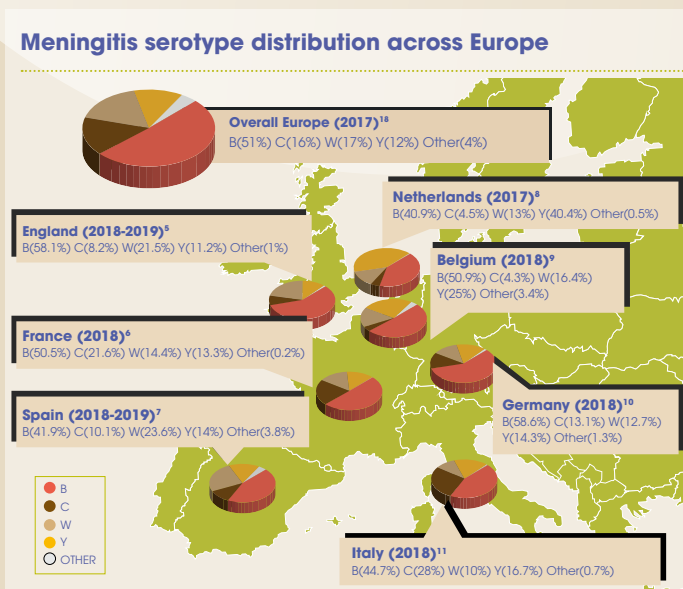
FAST DIAGNOSIS AND TREATMENT IS IMPERATIVE

The **early symptoms of IMD** can be misleading as they are flu-like in nature, making the disease diagnosis difficult.¹⁶ Classic signs of meningococcal disease include **fever, headache and stiff neck**. Other symptoms include nausea, vomiting, photophobia (being sensitive to light) and confusion.¹⁷

To **diagnose meningococcal disease**, samples of blood or cerebrospinal fluid are tested for the *Neisseria meningitidis* bacteria.¹⁶ **Fast diagnosis and treatment**, with appropriate antibiotics, is imperative. As a precaution, people who have been in close contact with anyone infected with meningococcal disease should also receive **antibiotics** to help protect against an infection.¹⁷ Vaccination should be offered as a preventative measure.¹

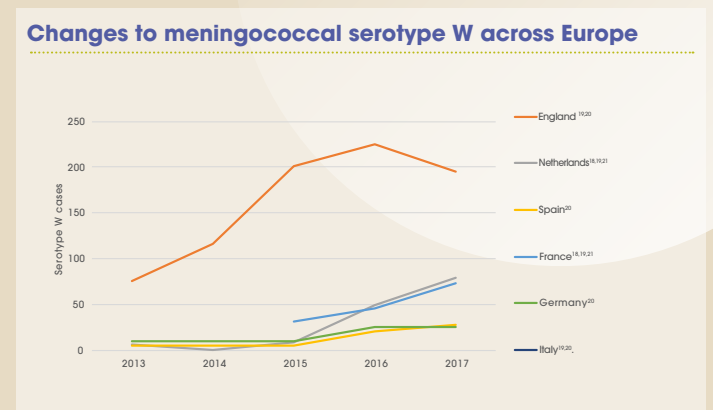


EPIDEMIOLOGY IS HIGHLY UNPREDICTABLE AND VARIES SIGNIFICANTLY



Across Europe currently, the majority of cases of IMD are caused by B, C, W and Y serogroups, but there are different incidence, prevalence and geographical variations of these serogroups.¹²

Recent trends are showing a decreasing incidence of meningococcal disease cases caused by serogroup B and an increase in serogroups Y and W.^{12,18,19} There has also been a significant increase in incidence of IMD caused by hypervirulent serogroup W, with a case fatality rate (CFR) described to be more than twice that of IMD caused by other serogroups.²⁰



THE BENEFITS OF VACCINATION

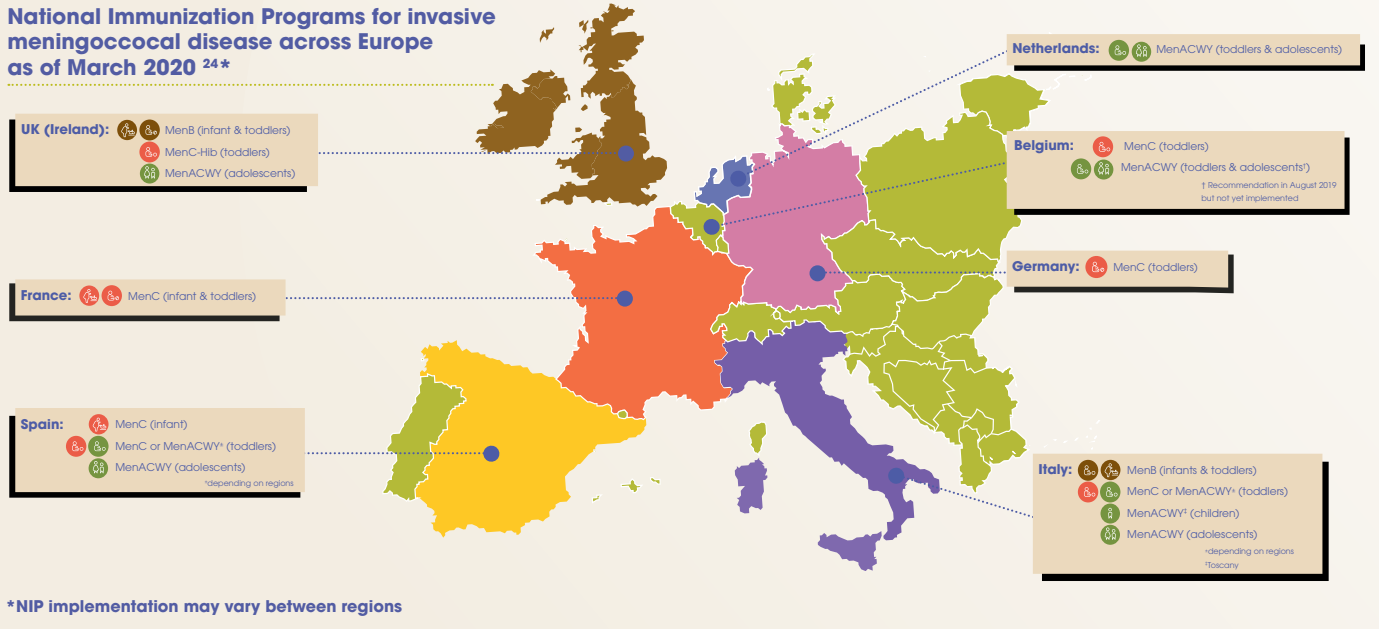
In Europe, several vaccines are currently available that help to prevent meningococcal diseases including quadrivalent conjugate vaccines to help protect against four serogroups (ACWY) with a single vaccine, and monovalent vaccines helping to protect against B or C serogroups.^{13,22}

Since 1999, **15 EU/EEA countries** have introduced vaccination against serogroup C disease into their **national routine childhood immunisation programmes** and the impact has been well-demonstrated.¹⁸ With the increase of hypervirulent serogroup W, several European countries have introduced MenACWY conjugate vaccination into their routine vaccination schedules, especially in adolescents who play a key role in the acquisition and transmission of IMD.^{13,23}

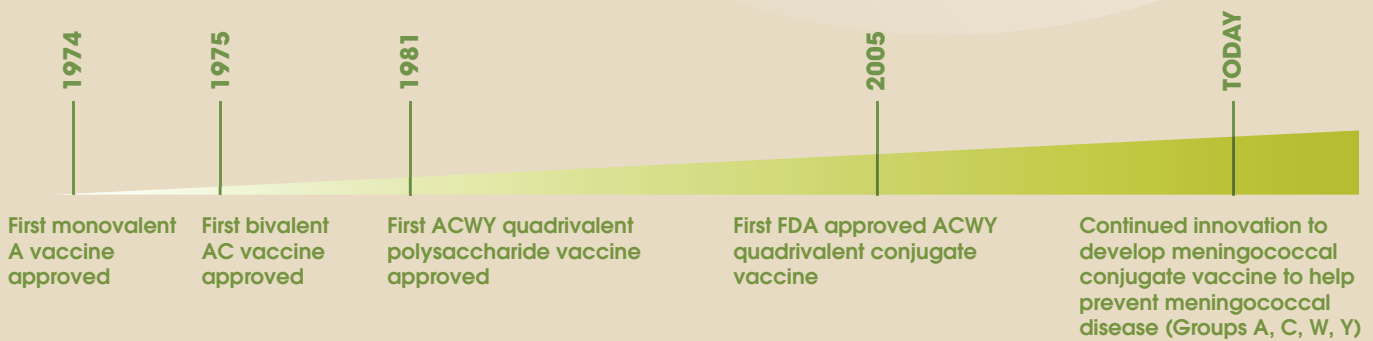
Considerable variation remains between EU/EEA countries immunisation recommendations, with some focusing on specific at-risk.¹⁸

These groups may include **toddlers, young children adolescents, immunocompromised individuals,** and people in **mass gathering or community setting situations** such as pilgrims and the military.¹⁸ These variations in vaccine recommendations leave room for outbreaks in unprotected and vulnerable populations. **No program to date covers the elderly population** despite a proven increased rate of infection in those over 65.^{12,18}

National Immunization Programs for invasive meningococcal disease across Europe as of March 2020 ^{24*}



SANOFI PASTEUR'S LEGACY: 45 YEARS ADVANCING MENINGOCOCCAL DISEASE PROTECTION



At Sanofi Pasteur, we believe in a world where no one suffers or dies from vaccine preventable diseases. **For over 45 years, Sanofi Pasteur has been at the forefront in combating meningococcal epidemics.** In 1974, made available the first monovalent A vaccine used in Africa, followed by the first bivalent AC vaccine in 1975, the first ACWY quadrivalent polysaccharide vaccine in 1981 and the first FDA approved ACWY quadrivalent conjugate vaccine in 2005. **Today, we continue to work towards defeating this disease.**²⁵

Sanofi Pasteur is **continuously developing and enhancing** manufacturing capacities to support increased vaccination programs as well as supporting **fast, efficient and reliable epidemic responses.**

Sanofi are actively involved with Public Health partners, patient associations, scientific and medical experts to achieve our united goal of broader protection and are **committed to playing our part in achieving the World Health Organization and Meningitis Research Foundation stated vision of a world free from meningitis by 2030.**²⁶



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