

Measles infection and encephalitis

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Encephalitis can occur in children and unimmunised adults either during or after a measles infection. This can happen because of the brain becoming infected with the virus during the rash phase of the illness or by an immune-mediated brain inflammation after measles infection. Measles is also the cause of a disease called subacute sclerosing panencephalitis (SSPE). This is a rare condition that can develop years after natural measles infection. SSPE is a degenerative neurological condition which progressively destroys nerve cells in the brain and almost always leads to mental deterioration and death. Symptoms typically appear 6-15 years after the measles infection. More information on SSPE is available on our website www.encephalitis.info.

Measles, mumps, and rubella (MMR) vaccine

The MMR vaccine is a very effective way to prevent against measles, mumps, and rubella. Two doses of the MMR vaccine provide 97% protection against measles. These infections are high-risk causes of encephalitis, and before the MMR vaccine was introduced all three infections were common in the UK. There is a wide range of credible information available on the good safety record of MMR vaccine at

www.gov.uk/government/uploads/system/uploads/attachment_data/file/147968/Green-Book-Chapter-21-v2_0.pdf

For both adults and children, vaccination is safer than catching the disease. The example below compares the risk of measles with the risk of MMR vaccine.

Measles

- 1-3 in 1,000 children contracting measles will develop encephalitis concurrent with the measles infection, called primary measles encephalitis. 10–15% of those children will die and a further 25% of patients will be left with permanent neurological damage.
- 1 in 1,000 children with measles will develop acute post-infectious encephalitis within 2-30 days after measles infection.
- 1 in 25,000 of children (1 in 5,500 children if they are under 1) with measles will develop subacute sclerosing panencephalitis (SSPE) which has a fatal (death) outcome.
- 1-2 in 1,000,000 children who had vaccination will develop encephalitis from the vaccination which is less than the incidence of all types of encephalitis.

In the past decade, coverage of measles, mumps and rubella vaccination in the UK has not been high enough. Many countries across Europe are currently experiencing large epidemics of measles due to not enough children having the MMR vaccine. Between January and October 2023 more than 30,000 cases of measles were seen across Europe compared to just 941 in all of 2022. In 2013, outbreaks of measles were reported in the North-West of England (376 cases) and Swansea (664 cases). Since October 2023, over a 5-month period, 581 laboratory proven cases have been reported. Acute encephalitis contributed to two of three measles related deaths reported in Europe in 2012. This highlights how important it is to make sure that children are protected from this preventable disease.

Roald Dahl's daughter, Olivia, died from measles encephalitis in 1962, prompting him to become an ardent supporter of the measles vaccine after the tragic loss of his child. He wrote a letter to parents encouraging them to get their children vaccinated: <https://www.roalddahl.com/roald-dahl/timeline/1960s/november-1962>.

For information on encephalitis and its effects, please see our information resources at www.encephalitis.info.

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Thank you!

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