

Stories

Roll out of meningitis vaccine saves children's lives

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Her findings critically informed the roll out of a life-saving new vaccine to protect young children from the disease.

A leading infectious killer of young children

Meningococcal group B disease (MenB) is a type of meningitis and can also cause septicaemia. It is a leading infectious killer among young children. The disease mostly affects children under the age of 1 year, followed by those aged between 1 and 4 years old. In 2014/15 there were over 400 confirmed cases of MenB disease in England, resulting in 25 deaths.

Before 2013, there were no vaccines to protect against MenB. Once a vaccine was licensed in the EU, UK policy makers needed clear evidence on its potential cost-effectiveness and impact before including it in the national immunisation programme.

Supported by a £200,000 [NIHR Researcher Development Award](#)

(<https://fundingawards.nihr.ac.uk/award/RDA/03/07/014>), Dr Hannah Christensen carried out her PhD at the University of Bristol to inform the evidence. While potential vaccines were in clinical trials, Dr Christensen and her team developed models estimating how widespread immunisation could reduce cases of meningitis and related blood poisoning as well as assessing the cost-effectiveness of possible immunisation programmes.

Following this, the NIHR continued to support Dr Christensen's work with a 3-year [Post-doctoral Fellowship](#) (<https://fundingawards.nihr.ac.uk/award/PDF-2012-05-245>), during which she investigated the real-world impact of meningitis vaccination schedules once the vaccine had been licensed.

Informing the national roll out of the MenB immunisation programme

In research published in the [BMJ](#) (<https://www.bmj.com/content/349/bmj.g5725>) in 2014, Dr Christensen recommended a MenB vaccination schedule for babies and a booster at 12 months old. She projected that the vaccination programme could reduce cases of meningitis by more than a

quarter in the programme's first 5 years. This was considered cost-effective if the vaccine was priced at £7 per dose for a 2-, 4- and 12-month schedule.

Her findings were critical to the Joint Committee on Vaccination and Immunisation's recommendation to the Department of Health and Social Care (DHSC) to adopt the MenB vaccine, Bexsero. In 2015, the UK became the first country in the world to include the vaccine in its routine [immunisation programme](https://www.gov.uk/government/collections/meningococcal-b-menb-vaccination-programme) (<https://www.gov.uk/government/collections/meningococcal-b-menb-vaccination-programme>).

The results were clear: [Public Health England](https://www.nejm.org/doi/full/10.1056/NEJMoa1901229) (<https://www.nejm.org/doi/full/10.1056/NEJMoa1901229>) reported within 3 years, following the programme's nationwide roll out in 2015, with data showing that 9 out of 10 12-month-old babies had been vaccinated by 2018, saving countless lives and preventing severe illness.

Cases of meningitis among babies eligible for vaccination were halved in the first 10 months of the programme. After 3 years, cases were reduced by three quarters.

Saving lives and NHS resources

Dr Christensen's research not only saved lives but also significantly reduced costs for the NHS. By rolling out her recommended vaccination schedule at the vaccine cost recommended in her models, the DHSC saved an estimated £136 million per year on the cost of the vaccine, according to the [REF2021 case study](https://results2021.ref.ac.uk/impact/47105d94-b44d-4cc0-81f2-bce097a49926?page=1#:~:text=Economic%20impacts%20for%20the%20NHS) (<https://results2021.ref.ac.uk/impact/47105d94-b44d-4cc0-81f2-bce097a49926?page=1#:~:text=Economic%20impacts%20for%20the%20NHS>).

Currently holding a £715,000 [NIHR Career Development Fellowship](https://fundingawards.nihr.ac.uk/award/CDF-2018-11-ST2-015) (<https://fundingawards.nihr.ac.uk/award/CDF-2018-11-ST2-015>), Dr Christensen is now an Associate Professor in infectious disease epidemiology. She continues to lead vital research, currently investigating the most effective vaccination strategies to older adults.

“ NIHR Fellowships have been fundamental in supporting my career development from PhD student to Associate Professor. They provided the resources I needed to pursue my research interests and make a real-world impact. The training and support provided through these fellowships have been indispensable, allowing me the opportunity to hone my skills, expertise and advance my research. ”

Dr Hannah Christensen

The NIHR Career Development Awards were funded by the [NIHR Academy](https://www.nihr.ac.uk/career-development/nihr-academy) (<https://www.nihr.ac.uk/career-development/nihr-academy>).

More information about the awards is available on the [NIHR's Funding & Awards website](https://fundingawards.nihr.ac.uk/award/RDA/03/07/014) (<https://fundingawards.nihr.ac.uk/award/RDA/03/07/014>).

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