New study confirms success of MenB vaccine in the UK

A new study by Public Health England (PHE) shows that infant vaccination against group B meningococcal disease (MenB) has resulted in a significant decline in cases of the disease in young children since the programme was introduced. The research was published in the New England Journal of Medicine on Wednesday 22 January 2020.

In September 2015, the UK became the first country to offer a new vaccine (Bexsero) against MenB to babies at 8 and 16 weeks of age, followed by a booster around their first birthday. Infants in the first year of life have the highest incidence of MenB disease so vaccinating at these times helps protect them when they are most at risk.

MenB is one of the leading infectious killers in young children. The disease causes meningitis and septicaemia (blood poisoning) especially in young children and, while most recover with swift medical treatment, sadly around 1 out of 20 will die of the infection. The disease can be life-changing for survivors who experience long-term complications such as brain injury, epilepsy, hearing loss, and amputation of limbs.

PHE's study shows that by the third year of the programme, cases of MenB disease were 62% lower in children who were eligible for at least 2 doses of the vaccine. Between 2015 and 2018, an estimated 277 out of an expected 446 cases were prevented because of the programme.

Dr Shamez Ladhani, Consultant Epidemiologist at Public Health England, said:

> England has one of the most comprehensive immunisation programmes in the world. The implementation of the MenB vaccine in 2015 is a great success, it is already saving lives and means fewer parents and young children will experience this devastating illness.
>
> It is vital that children receive all available vaccines on time to provide the best protection at the age when they are at highest risk. PHE is working closely with NHS England to make it as easy as possible for parents to access vaccines so that they can offer their children the best possible start in life.

Linda Glennie, Director of Research for Meningitis Research Foundation (MRF) said:

> Everyone who knows about this deadly disease and its after effects will welcome the news that the MenB vaccination has reduced cases and saved lives. MRF campaigned for the introduction of the MenB

> vaccination programme, and we help people who have been affected by meningitis through our Support Services on a daily basis. Preventing meningitis is important to parents and a key part of the plan to defeat the illness, and everyone eligible for vaccinations should take the opportunity to protect their families.

Dr Tom Nutt, CEO at Meningitis Now, said:

> What this latest news shows is that vaccines save lives. We'd encourage as many families as possible to take advantage of this vaccine, protect their children from meningitis, and avoid the heartache that this devastating disease leaves in its wake.
>
> We know that there's a lot of misinformation about vaccines on social media and on the internet, but this latest report shows that parents shouldn't worry about the safety of the vaccine – in fact, it saves precious lives. If people do have doubts and are concerned, they should talk to their GP or seek reassurance by calling our Helpline or visiting our website at Meningitis Now.

In England, MenB vaccinations are well-accepted by parents. Uptake has remained consistently high along with the other routine infant immunisations. In 2019 around 92% of infants completed their primary MenB vaccination by their first birthday and almost 88% received their booster dose by 2 years old. So far, almost 5 million doses of the MenB vaccine have been safely given to children in the UK.

The MenB vaccine does not protect against all causes of meningitis and septicaemia, so parents need to remain vigilant of the signs and symptoms and seek medical advice if they are concerned.

1. The UK was the first country to introduce the MenB vaccine BEXSERO into its national infant immunisation programme.
2. The vaccine BEXSERO aims to protect between 73 to 88% of MenB strains causing invasive disease such as meningitis and septicaemia in the UK.
3. Infants are routinely offered the MenB vaccine as part of the national immunisation programme at 8 and 16 weeks of age, followed by a booster around their first birthday.
4. In 2016, PHE published a paper in the Lancet which reported on the impact and effectiveness of the programme over the first 10 months of the programme.
5. PHE have reported on the safety of the vaccine after 3 million doses and found no significant safety concerns after widespread use of BEXSERO in UK infants. The paper also shows that the vaccine is accepted by parents because uptake for subsequent doses remain high.
6. More about the MenB vaccine is on NHS.UK.

7. Meningococcal disease can cause both meningitis (swelling of the lining around the brain and spinal cord) and septicaemia (blood poisoning). Septicaemia and meningitis can trigger sepsis which is a life-

threatening response to infection. Meningitis Research Foundation and Meningitis Now have more information on meningitis symptoms:

8. Full details of the meningococcal surveillance plan in England are available.
9. The full paper is available from the New England Journal of Medicine.

Dstl develops new Space weather sensing suite in 1 year

The Defence Science and Technology Laboratory (Dstl) is partnering with the US Naval Research Laboratory (NRL) on a joint mission to launch miniature sensors that will advance Space weather measurement and modelling capabilities.

The Coordinated Ionospheric Reconstruction Cubesat Experiment (CIRCE) comprises two 6U cube-satellites that will be launched into a near-polar low earth orbit (500km altitude) this year. Each 6U satellite bus, measures 10cm x 20cm x 30cm, and will fly almost identical instrument capability on both satellites.

The UK contribution to CIRCE is the Insitu and Remote Ionospheric Sensing (IRIS) suite, complementary to NRL sensors and comprising three highly miniaturised payloads developed for Dstl by University College London (UCL), University of Bath, and University of Surrey/Surrey Satellite Technology Ltd (SSTL). CIRCE will characterise a region of the Space environment, the ionosphere, which is important for a range of defence and civil applications and can impact GPS, communications and sensing technology.

All three IRIS payloads occupy a small volume no more than 10 cm x 10cm x 20 cm – you can hold IRIS in one hand. Miniaturisation of Space weather sensors means that a significant capability is packed into each satellite provided by Blue Canyon Technologies. This type of miniaturisation could pave the way for deployment of many more such sensors as a routine inclusion on other satellites thanks to their small size, weight and power. The result would expand data collection for the near-Earth Space environment, and enhance space weather modelling capabilities.

Dr. Nick Joad, Director Defence Science and Technology, said: “The CIRCE mission is great example of UK/US collaboration in Space. The concept to develop UK Space weather diagnostic capability supports our strategic relationship with the USA, and Dstl has recently delivered two flight models – totalling six miniaturised UK payloads – in just one year. Our UK partners from academia and industry are recognised world-leaders in the field of Space weather research, enabling us to rapidly design, build, and successfully test these tiny payloads.”

Dstl’s Space Programme Manager Mike O’Callaghan talks about the project here

Notes:

CIRCE

CIRCE is the flagship mission of the UK-US Science and Technology Joint Communique, where the aim is to build on our existing strong relationship in this area to address emerging priorities through joint research on various themes, including space weather.

IRIS

IRIS provides in-situ ionospheric particle & radiation measurements (INMS and RadMon), combined with remote-sensing of triple-frequency GPS signals to map the topside ionosphere and beyond (TOPCAT). The UK data will provide contextual environmental information for CIRCE, and enrich the science that can be derived from NRL’s triple tiny ionospheric photometry (Tri-TIP) ultra violet optics cameras, for tomographic specification of electron density.

The IRIS suite, integrated by SSTL, includes:

1. An Ion and Neutral Mass Spectrometer (INMS), developed by UCL’s Mullard Space Science Laboratory, which will improve understanding of the variability of atmospheric drag, the chemistry of the thermosphere and the impact of space weather on the upper-atmosphere;
2. A Radiation Monitor (RadMon) from SSTL will identify areas of increased radiation for satellites to avoid, help identify suitable orbits and shielding requirements for future satellites, and highlight dynamic radiation enhancements that can be cross-correlated with payload and subsystem anomalies;
3. A remote sensor called TOPCAT, developed by Bath University’s department of Electronic and Electrical Engineering, will look at remote sensing of triple-frequency GPS signals, and validate the UK’s Multi-Instrument Data Analysis System (MIDAS) tomography algorithm for the topside ionosphere and plasmasphere, by using total electron content (TEC) measurements from the differential phase of GPS signals, inverting them to derive the electron density of the region.

Picture credit: CAD models of the CIRCE mission satellite buses, courtesy Blue Canyon Technologies

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Active Hospitals

Summary

As part of the Moving Healthcare Professionals programme, PHE and Sport England have created an Active Hospital feasibility and acceptability pilot which has been developed and tested by Oxford University Hospitals NHS Trust. The pilot aimed to explore integrating physical activity interventions in a secondary care setting. To ensure an evidence-based approach, specific physical activity behaviour change interventions were designed, implemented and mapped alongside existing care using the Behaviour Change Wheel (Mitchie and others, 2011). One of the most successful interventions, the maternity pathway, has enhanced care through all pregnant women undergoing assessment and receiving brief physical activity advice.

Dr. Christoper Speers – Consultant in Sport and Exercise Medicine, Oxford NHS Trust Full Interview

Background

The programme has been piloted in different departments across Oxford University Hospitals NHS Trust. Each department became a separate 'pathway'. These included prosthetics, renal transplant, inpatient complex medical unit, cardiology and maternity. In each pathway, a clinical champion was employed to lead the Active Hospitals pilot within each department and they were responsible for developing the interventions, as well as providing leadership and training to other staff within that clinical setting.

Clinical champions ensured that staff members within these pathways undertook training on motivational interviewing skills, to understand and communicate the benefits of physical activity to women. This training is underpinned by the evidence-based principles of Moving Medicine, a parallel Moving Healthcare Professionals programme developed by the Faculty of Sport and Exercise Medicine, to improve the quality of conversations about physical activity between patients and healthcare professionals.

Dr. Ralph Smith – Consultant in Sport and Exercise Medicine, NHS Oxford Trust Full Interview

How the service works: maternity pathway

The maternity pathway has engaged and enhanced the care of more than 10,000 pregnant women through the introduction of the designed interventions. These include:

- embedding a physical activity calculator with brief advice
- utilising motivational interviews for women with gestational diabetes
- group educational sessions
- staff training
- changing the outpatient environment with posters and a promotional film
- developing and distributing new patient information leaflets

Designed and incorporated into the electronic record system, the physical

activity calculator has put the promotion of physical activity at the start of a pregnant woman's contact with the hospital. Midwives have undertaken bespoke training to use the calculator and provide advice about physical activity during pregnancy. The training programme, which has now reached over 80 midwives across the Oxfordshire region, has improved the confidence levels of health professionals when discussing physical activity, changes in practice and offering brief advice.

Since April 2018, all pregnant women at OUHFT have been assessed using this tool. It identifies those women who do not meet the aerobic component of the CMO physical activity in pregnancy recommendations, so that this can then be flagged and explored again in further appointments.

Nicole Wango – Physical Activity Midwife Champion, NHS Oxford Trust Full Interview

For women with gestational diabetes, a specific clinic pathway was introduced. Clinical champions conducted motivational interviews and women were supported to set physical activity goals. These goals were tracked using a goal-setting booklet during regular follow-up sessions. This service ensured physical activity advice, an important intervention to help manage blood glucose levels, can compete with all the other aspects of care that women receive. Early findings have indicated a significant increase in self-reported physical activity levels 2 weeks after the intervention.

The clinical environment has been changed to encourage physical activity conversations, with posters and promotional materials including a short film. Developed as part of the pilot, an interactive community navigation map has been created to aid clinicians, patients and their relatives to identify possible support available in the community to facilitate ongoing physical activity, linking them with suitable community-run classes and activities.

Next steps

The central Active Hospitals team at Oxford University Hospitals NHS Trust has supported the expansion of the Active Hospital model to incorporate and enhance physical activity as a routine part of patient care in many other clinical services within the Trust.

The Trust continues in its activities to integrate physical activity into secondary care systems through the pilot and, next year, an 'Active Hospital Toolkit' that includes findings, learnings and experiences will be published.

The second phase of the Active Hospitals programme will involve two additional pilot sites in 2020.

Further information

Dr Christopher Speers, Dr Ralph Smith & Dr Natasha Jones Sport and Exercise Medicine Consultants, Oxford University Hospitals Foundation Trust

Environmental bodies set joint vision to tackle climate change

The chairs of England's three environmental bodies have today (23 January 2020) responded to the Committee on Climate Change's (CCC) land use report by outlining a shared vision and practical actions to tackle the climate and biodiversity emergencies.

In a landmark commitment, Emma Howard Boyd, Chair of the Environment Agency; Tony Juniper, Chair of Natural England; and Sir Harry Studholme, Chair of the Forestry Commission; have pledged to work together to deliver nature-based solutions to climate change, helping the government meet its ambition to reach net zero by 2050.

This comes as the CCC publishes its Land Use: Policies for a Net Zero UK report, presenting a range of options to reduce the UK's carbon footprint, including through nature-based solutions such as tree planting, peatland restoration, and low-carbon farming practices.

With the planet in the grip of a climate emergency, the UK is rightly taking steps to reduce greenhouse gas emissions both at home and abroad. The protection and restoration of nature is a vital part of how we must do this, delivering benefits not only for climate change, but also solutions to the parallel and closely linked crisis seen in the rapid decline of nature.

For example, new forests will take carbon dioxide out of the atmosphere and reduce the impact of flooding that is already being caused by climate change, while at the same time enabling wildlife recovery and the restoration of beautiful landscapes. Similarly, the protection and restoration of peatland will prevent the release of greenhouse gases, while also helping rare species to expand their populations.

As such, the Environment Agency, Forestry Commission and Natural England commit to collaborating their responses to the climate and biodiversity emergencies by:

- Delivering large-scale woodland creation – fulfilling the government's plans to increase tree planting rates up to 30,000 hectares per year, across the UK, by 2025 – working closely with devolved authorities, communities and landowners – and ensuring that new and existing woodland is based on the right trees in the right place and is properly managed. Meeting the tree-planting commitment will help to take carbon dioxide out of the atmosphere, while also providing habitats for wildlife, better soil health and water retention, and recreational benefits.
- Protecting and restoring peatlands – peatlands have a vital part to play in tackling climate change, storing more carbon than all other types of vegetation in the world combined, and damage to peatlands is a major

source of carbon emissions. Natural England is actively restoring peatland on sites that it owns or manages and is supporting other landowners and managers in restoration. The government's England Peat Strategy will be published in the spring, and we will implement its measures to protect and restore our precious peatland.

- Supporting farmers towards net zero – working alongside the government in the development and delivery of the Environmental Land Management scheme, which will reward farmers for delivering public goods such as supporting wildlife and tackling climate change.
- Working with nature to manage flood risk – climate change is already causing more frequent and intense flooding. Alongside traditional flood defences, by planting trees, building leaky dams and restoring natural habitats such as wetlands, sand dunes and salt marsh, we can use nature to reduce the impact of floods while removing carbon from the atmosphere and improving habitats for wildlife. This is already an important part of the Environment Agency's draft FCRM strategy, and the Forestry Commission and Natural England will play a part in delivering this.
- Taking a strategic approach to land use – ensuring that nature-based solutions are used in places where they can be most effective, avoiding potential adverse impacts on the environment and communities, while also ensuring that developments in renewable energy and other infrastructure do not mean compromising on nature-based solutions. In other words, we will seek ways to go low carbon in our energy while at the same time going 'high wildlife'.
- Encouraging alternatives to carbon intensive materials – promoting and encouraging the use of timber products for construction and other industries will mean a move away from carbon intensive materials such as concrete and steel. This means that there is the potential to store millions of tonnes of carbon in the UK's new and refurbished homes simply through the use of different building materials and techniques.
- Pushing for action across the UK and abroad – we cannot act alone. At a UK level, we have already brought together representatives from Scotland, Wales, and Northern Ireland to agree how we can work together on nature-based solutions for climate change, and are hoping to continue this collaboration with a further summit in the near future. Hosting COP26 in Glasgow represents a one-off opportunity for the UK to turn the tide on the climate emergency. The UK government is already working on a bold and ambitious agenda for the summit, and we will work with the government to ensure that nature recovery is at the heart of this.

Emma Howard Boyd, Chair of the Environment Agency, said:

> As we're seeing with tragic bushfires in Australia and some of the extreme weather in the UK over the past few years, the climate emergency can no longer be underestimated. We must do everything we can to not only tackle climate change, but also adapt to its impacts, including the increased risk of drought and flooding here in the UK.
>
> Building hard flood and coastal defences will always be important, but as our draft FCRM strategy shows, natural solutions like

restoring wetlands to store flood water and planting trees to hold water in the soil will play an increasingly important role in the future – all whilst taking carbon dioxide out of the atmosphere.

2020 must be a year of ambitious climate action both at home and across the globe, and it's only by working together and agreeing collective action that we can both deliver net zero and adapt to the climate future.

Tony Juniper, Chair of Natural England, said:

In meeting the climate change emergency it will be vital to reduce emissions from power, heating and transport. It is equally important, however, that we combine these efforts with plans for the protection and recovery of the natural environment. Given the scale of the challenge, a joined-up approach that embraces nature's recovery is not an optional extra, but must be central to the whole plan, to both catch carbon and to help us adapt to what are now inevitable climate change impacts.

The good news is that restoring of peatlands, the reestablising of forest cover, and the renaturalising of the coast will deliver multiple additional benefits for the country, including for our wildlife and collective health and wellbeing.

And just as individual organisations cannot deliver the scale of change needed on their own, neither can individual nations, which is why we must seize the opportunity of COP26 in Glasgow to agree ambitious global action with nature based solutions at its heart.

Sir Harry Studholme, Chair of the Forestry Commission, said:

Public interest in trees has never been higher. The climate emergency has highlighted the role forests play in absorbing carbon dioxide, while we also remember the breadth of their benefits. They provide homes for birds and other wildlife, help to retain water in the soil to reduce flood risk, offer sustainable and profitable timber supplies and provide huge benefits for our health and wellbeing.

We are encouraging farmers and land managers to invest in tree-planting, and through schemes such as our recently launched Woodland Carbon Guarantee we are making sure we tackle climate change through nature-based solutions, while also providing a long term financial incentive to increase their carbon capture.

But, while the importance of planting more trees cannot be underestimated, it is also vital that we nurture and manage our woods to allow them to thrive to the fullest extent. Working hand

in hand with the government and England's other environmental bodies gives us the perfect opportunity to deliver on our vision and help with our journey to reach net zero by 2050.

The parkrun practice initiative

Summary

In 2018, the Royal College of General Practitioners (RCGP) and parkrun UK launched the parkrun practice initiative to promote the social prescribing of physical activity through participation in local 5k parkrun events. More than 16% of practices in the UK have registered to become a parkrun practice.

Background

The parkrun practice initiative is a social prescribing programme taking an accessible and low cost approach to promoting health and wellbeing throughout primary care. The initiative enables GPs and practice staff to socially prescribe physical activity by referring patients to one of the more than 660 parkruns that take place throughout the UK every weekend. Building on the research conducted by parkrun in 2017, which revealed that hundreds of healthcare practitioners were already signposting patients to parkrun events, the initiative has rapidly gained interest from primary care teams across the country.

What was involved

The parkrun practice initiative encourages GP practices to link with their local 5k parkrun event(s) to become a parkrun practice, committing to promoting parkrun participation by patients and staff. It is open to all practices, regardless of whether the GPs are members of the RCGP.

The specific aims of the parkrun practice initiative are to:

- improve the health and wellbeing of patients
- improve the health and wellbeing of practice staff
- raise awareness of the services that practices provide
- develop a local community centred around wellness
- support the growth of social prescribing activities

The process begins when practices register via the parkrun practice website and are then sent marketing assets to display in their waiting room and other materials to share through various communications channels.

Staff are encouraged to promote patient participation in parkrun, as walkers,

runners, volunteers or spectators, but also to participate themselves. Not only is staff participation seen to be a morale boosting experience for the whole practice to be engaged in, but it also means that staff are more likely to be persuasive advocates.

A toolkit is available on the parkrun practice website that offers ideas and information on the types of activities that can be undertaken. However, it is deliberately non-prescriptive and the onus is on the practice and their partnered parkrun(s) to maximise the opportunity in a way that best meets the needs of the local community.

Activities range from more passive forms of promotion, such as putting leaflets in waiting rooms and displaying information on TV screens, to handing out flyers, hosting parkrun information sessions and holding volunteer takeover days, with whole practice teams and patients carrying out the volunteer roles at a particular parkrun. Through this initiative, the practice takes steps towards meeting the RCGP Active Practice Charter accreditation.

Working Well

To date, more than 16% of practices across the UK have registered. However, the initiative is still in the early stages of development, and an ongoing evaluation by Warwick Medical School will shed light on implementation and impact. Initial results indicate that many staff members have been encouraged to participate in parkrun since becoming a parkrun practice.

The collaboration between the practice and a local parkrun helps make the connection between public health and voluntary organisations, assisting in the creation of healthier, connected communities. At a national level, the collaboration between RCGP and parkrun provides an example of how 2 organisations can work successfully together to run a low-cost, innovative and scalable solution to promoting activity and improving health and wellbeing.

Chrissie Wellington, Global Head of Health and Wellbeing at parkrun UK:

> In 16 months we have seen over 1,350 GP practices link with their local parkruns to increase the health of staff and patients and create positive, supportive communities that are centred on wellness. This partnership shows the immense value of bringing together the health and voluntary sectors in pursuit of shared goals, and we look forward to building on this successful collaboration in future.

Dr Andrew Boyd MRCGP, GP partner, Clapham Park Group Practice:

> We have been blown away by the response from GPs and their teams to this initiative. Its success demonstrates there is a growing

> appetite amongst GPs to forge meaningful links with local assets and services to help better the health of their patients. I believe the parkrun practice initiative will be a blueprint for future partnerships between healthcare providers and other local community assets.

Further information

There has been considerable demand from across primary and secondary care to replicate the initiative across sectors. However, for the time being, parkrun is focused on the collaboration with RCGP and maximising the impact of this project rather than expanding it to other sectors. Resources are available to other health care bodies and individuals who wish to signpost staff and patients to these accessible, welcoming community-led events.