Public Health England

Changes to the Meningococcal C conjugate (MenC) vaccine schedule 2013 - Q&As for healthcare practitioners

Background

The meningococcal C (MenC) vaccination programme was first introduced into the UK routine immunisation programme in November 1999. All children and adolescents under the age of 18 years were offered immunisation over the subsequent two year period. In 2002 the catch-up campaign was extended to include all adults less than 25 years of age.[1]

In 2006, following studies that showed two doses of MenC vaccine provided good protection in the first year of life but protection waned during the second year of life, the primary immunisation course was changed to two doses at three and four months of age, and a booster dose at 12 months of age was added to extend the duration of protection.[1,2]

Following the success of the MenC vaccination programme, disease caused by MenC has fallen by over 95% and cases are now at an extremely low level in the UK. This is due to both individual direct protection and indirect protection or herd immunity. In order to maintain these low levels of disease and herd immunity, the Joint Committee on Vaccination and Immunisation (JCVI) has recommended further changes to the schedule.

Meningococcal disease

What is meningococcal disease?

Meningococcal disease is caused by invasive infection with the bacterium *Neisseria meningitidis*, also known as the meningococcus. There are 12 identified serogroups of which groups B, C, W and Y were historically the most common in the UK. Since the introduction of the routine MenC vaccination programme, cases of invasive meningococcal disease in the UK due to serogroup C have reduced dramatically, with serogroup B accounting for the majority of cases.

Meningococcal infection most commonly presents as either meningitis or septicaemia, or a combination of both.

Meningococci colonise the nasopharynx of humans and are mostly harmless commensals. Between 5 and 11% of adults and up to 25% of adolescents

carry the bacteria without any signs or symptoms of the disease. In infants and young children, the carriage rate is low.

Meningococcal disease is transmitted by respiratory aerosols, droplets or by direct contact with the respiratory secretions of someone carrying the bacteria. The incubation period is from two to seven days and the onset of disease varies from fulminant with acute and overwhelming features, to insidious with mild prodromal symptoms.

Who is affected by meningococcal disease?

Meningococcal disease can affect all age groups, but the rates of disease are highest in children under five years of age, with the peak incidence in those under one year of age. There is a second peak in incidence in young people aged 15 to 19 years of age.

The vaccination programme

Why is the MenC vaccination programme changing?

JCVI have advised that changes to the schedule will make the overall MenC immunisation programme more effective and offer greater protection to teenagers. Studies show that vaccination against MenC disease in early childhood provides a relatively short-term protective immune response. Protection given by vaccination at 12 months wanes by the teenage years, but vaccination later in childhood provides higher levels of antibody that persist for longer. [3,4,5,6] Evidence also shows that MenC vaccination significantly reduces nasopharyngeal carriage of the serogroup C meningococcus, providing indirect protection through herd immunity.[7,8]

Infant programme: The second dose of MenC vaccine currently given at 4 months of age is to be removed from the routine schedule. This recommendation follows a study that showed a single priming dose in infancy at three months of age is sufficient to provide protection against MenC disease in the first year of life.[9]

Teenage booster: JCVI have recommended the introduction of an adolescent booster to be given at the same time as the teenage tetanus, diphtheria and polio vaccine (Td/IPV), to extend protection into early adulthood.

What are the changes to the MenC programme?

From summer 2013 the MenC routine schedule will change to the schedule shown in Table 1.

Table 1 MenC routine vaccination schedule revised 2013

Age	Primary/ Booster	Dose
3 months	Primary	1 dose – MenC vaccine **NeisVac-C® or Menjugate® Kit ONLY**
12-13 months	Booster	1 dose –Hib/MenC vaccine **Menitorix®**
From 14-15 years during academic year 2013/14 moving towards 13-14 years	Booster	1 dose – MenC Vaccine **Meningitec® Menjugate kit® †**

†Any MenC vaccine can be used, however if possible use Meningitec® or Menjugate Kit® until current supplies are exhausted.

When will the changes to the MenC programme start?
The national or local Child Health Computer Systems will schedule the 4 month dose of MenC vaccine to stop from the 1st June 2013.

The routine MenC booster immunisation for teenagers will start in the 2013/14 academic year. It will be offered at the same time as the current teenage Td/IPV booster.

Which MenC vaccine is recommended for the primary dose at 3 months of age?
Neisvac-C® or Menjugate Kit® should be used for the dose given to infants at 3 months of age because these vaccines provide a good immune response after one dose under 1 year of age, and strong immune responses when boosted with Hib/MenC vaccine routinely given at 12 to 13 months.[3]

Meningitec® should **not** be used for primary vaccination of infants as one dose is less immunogenic under 1 year of age.

Neisvac-C® or Menjugate Kit® or Meningitec® can be used for teenagers. However to ensure there is sufficient stock of other MenC vaccines available

for infants, the Chief Medical Officer letter states that **Meningitec®** should be the vaccine of choice for this group.

What does 'Around 14 years' mean?
Whilst JCVI has advised that the adolescent MenC booster dose be given in school year nine (13 to 14 years of age) and at the same time as the Td/IPV vaccine booster dose, we are aware that presently, a significant proportion of Td/IPV vaccine is offered at a later age, eg school year 10 (14 to 15 years of age). Eventually arrangements should be made to align the new routine schedule into school year 9 (13-14 yrs), however the MenC conjugate booster dose may, for a period of time, be administered in other school years alongside the adolescent Td/IPV booster. The term 'around 14 years' is to avoid being prescriptive about the age at which vaccination should occur, thus allowing for local differences in the age at which the teenage booster vaccinations will be offered in the near term.

The Summary of Product Characteristics (SPC) for Neisvac-C® and Menjugate Kit® state that two doses should be given two months apart to infants less than a year old but the Green Book meningococcal chapter says to only give one dose. Which recommendation should I follow?
Evidence from a UK study shows that immunogenicity is adequate following a single priming dose in infants.[9] In this situation where the SPC information differs from the information within the Green book, the information in the current chapter of the Green Book should be adhered to.

What if a child aged ten years or older has received a booster dose of a MenC vaccine previously?
Individuals vaccinated age ten years or older have higher levels of antibody, and protection persists until at least early adulthood and possibly longer.[6] Therefore if a child received a booster dose of MenC vaccine age ten years or older, they should be adequately protected and do not need further routine scheduled doses in adolescence.

If an infant has received a dose of Meningitec® at 3 months of age, which brand should be used for the second dose at 4 months of age?
Infants immunised with Meningitec® at 3 month of age can receive either Meningitec® or Menjugate kit® at 4 months of age.

What should you do if an infant, who was previously immunised with Meningitec® at 3 months of age, inadvertently receives NeisVac-C at 4 months of age instead of the recommended Meningitec® or Menjugate®?

Most infants who receive Meningitec® vaccine at 3 months of age followed by NeisVac-C® at 4 months will be adequately protected with this combination and their immunity will also be boosted by the 12 month dose of Hib/MenC (Menitorix®) vaccine. However, one study has shown that a small number of infants who received a MenC vaccine with a CRM carrier protein (e.g. Meningitec® or Menjugate®) followed by a MenC vaccine with a tetanus carrier protein (i.e. NeisVac-C®) did not make as good an immune response both to Hib and to MenC. For this reason, it is recommended that where an infant inadvertently receives this combination, they should be offered a dose of Menitorix® vaccine at least 4 weeks after the Neisvac- C® was given. They should then receive the 12 month Menitorix booster as per the routine schedule.

Infants who received this combination prior to the programme change on 1 June 2013 do not need to be recalled for further vaccination. Hib and MenC infections are currently rare in infants in the UK and these infants will receive their 12 month Menitorix booster within the next few months.

Why can't Neisvac C® be used as the second dose?

Some infants receiving Meningitec® or Menjugate kit® at 3 months followed by Neisvac-C® at 4 months may not develop an adequate immune response to help protect them against Hib or against MenC.

If the practice only has Neisvac C® available is it better to give it as the second dose, or not to give a second dose at all?

In such cases, the practice should request Meningitec® or Menjugate kit® for the infant.

Where can I get more information?

- Department of Health (DH), Public Health England (PHE) and NHS England Joint letter (2013) "changes to the schedule for meningococcal serogroup C conjugate vaccine". https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/197618/MenC_letter_FINAL.pdf
- Department of Health, (2013) Immunisation against infectious disease (the Green Book) Meningococcal chapter

https://www.gov.uk/government/organisations/public-health-england/series/immunisation-against-infectious-disease-the-green-book

- Training slides available at https://www.gov.uk/government/organisations/public-health-england/series/immunisation
- Leaflets and poster resources available to order from the Publications Orderline http://www.orderline.dh.gov.uk/ecom_dh/public/home.jsf
- Information on meningococcal disease is available at: http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/MeningococcalDisease/

Useful links

- Meningitis Research Foundation: http://www.meningitis.org/
- Meningitis Trust: http://www.meningitis-trust.org/
- NHS Choices: http://www.nhs.uk/Pages/HomePage.aspx
- Joint Committee on Vaccination and Immunisation: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/ab/JCVI/index.htm

References

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1999-2000 and response to a booster: a phase 4 clinical trial. *Clin Infect Dis* 2010; 50: 1601-10.

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10. Ala'Aldeen D et al. Carriage of meningococci by university students, United Kingdom. *Emerg Infect Dis* 2011;17:1762-3.

11. Bruce MG et al. Risk factors for meningococcal disease in college students. *JAMA* 2001; 286: 688-93.

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13. Bidmos FA et al. Persistence, replacement and rapid clonal expansion of meningococcal carriage isolates in a 2008 university student cohort. *J.Clin Microbiol* 2010; 49:506.

14. Butler KM. Meningococcal meningitis prevention programs for college students: A review of the literature. *Worldviews Evid Based Nurs* 2006; 3:185-93.

Acknowledgment

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