Department of Health & Social Care (https://www.gov.uk/government/organisations/department-of-health-and-social-care)

Independent report

Joint Committee on Vaccination and Immunisation (JCVI) statement on changes to the childhood immunisation schedule

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Background

The Joint Committee on Vaccination and Immunisation (JCVI) is an expert scientific advisory committee which advises the UK government on vaccination and immunisation matters.

The JCVI has been notified that Menitorix© (Hib/MenC) is to be discontinued. This was a commercial decision made by the marketing authorisation holder, GSK.

Menitorix© vaccine immunises against Haemophilus influenzae type b (Hib) and invasive capsular group C meningococcal (MenC) disease, and is currently given as part of the routine childhood immunisation schedule at 12 months of age. It is given alongside a dose of pneumococcal conjugate vaccine (PCV), measles, mumps and rubella (MMR) and group B meningococcal vaccine (4CMenB).

Menitorix© is the fourth dose of a Hib-containing vaccine given in the childhood immunisation schedule. The prior 3 doses are given as the hexavalent DTaP/IPV/Hib/HepB vaccine at 8, 12 and 16 weeks of age. Infections caused by Hib have been under excellent control in the UK as a result of the current 3 plus 1 schedule and sustained high vaccine coverage.

As Menitorix© is the only Hib/MenC combination product currently available on the UK market, changes to the routine infant schedule are necessary. It is estimated that, based on current UK stocks of Menitorix©, the current routine schedule can continue until 2025.

The JCVI discussed options for the necessary changes to the schedule between February 2020 and June 2022. In August 2022 an interim statement was published by the JCVI (https://www.gov.uk/government/publications/jcvi-interim-statement-on-changes-to-the-childhood-immunisation-schedule) setting out the main changes to the immunisation schedule. In October 2022 the JCVI discussed the advice further and finalised the recommended changes to the infant schedule to be made following the use of current Menitorix© stocks.

Advice

The JCVI advised that the following changes should come into effect nationally once the current supply of Menitorix© vaccine has been used:

- an additional dose of Hib-containing multivalent vaccine (such as the DTaP/IPV/Hib/HepB which is also given earlier in infancy) should be given at 18 months
- the second dose of MMR vaccine should be brought forwards from 3 years 4 months to 18 months of age

- due to the success of the adolescent MenACWY programme in controlling meningococcal C disease across the population a dose of meningococcal C containing vaccine is no longer recommended at 12 months

In the meantime, the JCVI will keep emerging evidence under review, including ongoing epidemiology and disease incidence.

Additional immunisation visit

The recommendation for giving both the Hib-containing vaccine and the second dose of MMR vaccine at 18 months requires the creation of a new immunisation visit.

The main purpose of advancing the second dose of MMR vaccine is to improve coverage of the second dose and therefore further reduce the likelihood of measles outbreaks. In areas of London where the second dose of MMR was brought forwards in response to local measles outbreaks, second dose coverage increased by an average of a 3.3 percentage points (Lacy and others). As the uptake of all routine vaccines remains of paramount importance, the JCVI considered that the probable benefit of increasing coverage in MMR justifies the additional routine immunisation visit.

This additional immunisation visit makes space in the programme to consider other vaccination programmes in the future and allows flexibility when considering the best schedule for these.

Timing of the Hib dose

The JCVI considered multiple options in relation to the timing for giving the Hib-containing vaccine. In the interim statement it was recommended that this dose should be given at either 12 or 18 months. Since the publication of the interim statement, the JCVI has considered the benefits and opportunities of both options.

The overarching aim of the Hib programme is to attain herd immunity in the population. If the aim of the programme were individual protection, the 12-month option might be considered preferable as this would boost protection in individual infants earlier. However, due to the success of the 3 plus 1 Hib immunisation programme, there is minimal Hib currently circulating in the UK and boosting an individual child’s level of protection is less necessary.

Modelling studies (Jackson and others) have shown that Hib transmission is primarily driven by children aged 2 to 4 years, therefore vaccination at any time before then should prevent transmission. Without a booster dose carriage is likely to increase, with one study (Oh and others) showing a carriage prevalence of 4% in school-age children who had not had a booster.

Giving the Hib-containing vaccine dose at 18 months allows space and flexibility to consider the best schedule for future programmes.

The gap between pertussis-containing vaccines (DTaP/IPV/Hib/HepB given at 18 months followed by dTaP/IPV at 3 years 4 months) would be shortened. There is evidence that suggests that frequent acellular pertussis (aP) booster doses lead to a shorter duration of protection from each subsequent dose. From an immunological perspective, moving this dose of a pertussis-containing vaccine to later may be beneficial, although it would leave a longer delay in those who have missed previous doses and therefore will remain at higher risk.

Although placing the Hib-containing DTP vaccine at 18 months decreases the interval between this vaccination and the next diphtheria/tetanus/pertussis/polio containing vaccine, at present, no changes to the dTaP/IPV pre-school booster given at 3 years 4 months of age are recommended.

Having an immunisation visit prior to school entry provides an additional opportunity for any children who may have missed previous vaccine doses to catch up with their routine immunisations. Any further consideration on changing the timing of the dTaP/IPV booster would need to be considered from an operational perspective.

Group C meningococcal vaccine

The introduction of a MenC vaccination programme in 1999 led to a significant reduction in the number of cases of invasive meningococcal C disease. Over time there has been a reduction in the overall number of MenC-containing vaccine doses in the UK routine immunisation schedule. Currently MenC-containing vaccines are given at 12 months (as Hib/MenC) and at 14 years (MenACWY).

The teenage MenACWY programme started in 2015 and has been successful in reducing incidence of meningococcal disease. Alongside this programme, a further significant decline in the spread and detection of invasive meningococcal disease (IMD) was seen as a result of implementation of social distancing and lockdown measures as part of the emergency response to the COVID-19 pandemic (UK Health Security Agency (UKHSA), 2022).

Modelling work reviewed by the JCVI in June 2022 found that indirect protection against MenC in infants is sustained as a result of the teenage MenACWY programme. Over time the teenage vaccine programme is expected to reduce carriage prevalence of groups C, W and Y to near elimination levels (group A carriage has already been almost undetectable for many years in the UK). The predicted decline in transmission has been accelerated by the effects of the pandemic and the resulting reduction in social contact. It is therefore predicted that by the time Menitorix is no longer available there would be very few IMD cases caused by meningococcus groups A, C, W and Y each year, and therefore very few cases which could be prevented by a MenC-containing vaccine in infancy. It is therefore very unlikely that an infant or toddler MenACWY immunisation campaign would be cost effective.

Maintaining good vaccine uptake is vital to all immunisation programmes and efforts should be continued to promote catch up vaccination in all those who may have missed out on vaccinations during the pandemic.

It is essential that good surveillance of meningococcal infection and IMD is maintained to monitor the impact of the vaccination programme and expected overall decline in disease.

Stakeholder response

Following the publication of the interim statement, the JCVI received correspondence from a number of stakeholders.

The JCVI noted concerns about MenACWY vaccine uptake in the teenage programme where this is relied on to provide indirect protection. Modelling showed that where the uptake substantially dropped indirect protection was still maintained, however it will be important that efforts continue to be made for vaccine catch-up for any cohort that missed vaccination.

The JCVI understands that the modelling will be published in the future.

The JCVI noted the overall concerns about the timing of the changes, and not making changes to the schedule prior to the stock of MenC/Hib vaccine running out. Should any changes to the epidemiology of meningococcal C or Hib occur in the meantime, the JCVI would review any further evidence.

References

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