



Public Health
England

Protecting and improving the nation's health

Hepatitis B vaccination in adults and children: temporary recommendations from 21 August 2017

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

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Document Revisions:

| Version | Changes |
|------------------------------------|---|
| 1.1 – 21 st August 2017 | <p>This document was revised on 21 August 2017 and revisions include:</p> <ul style="list-style-type: none"> • what to do if patients present with exposure incidents in sites where there is no vaccine • advice to flag individuals in whom vaccination is deferred so they can be vaccinated at a later date • advice on using hexavalent combination vaccine in place of the 8 week dose in babies born to women with hepatitis B infection • clarification on the role of hepatitis B immunoglobulin • further clarification on deferral of booster doses |

Hepatitis B temporary recommendations for vaccine prioritisation and use during supply constraints

A schedule of Hepatitis B vaccine is highly effective in preventing infection when given prior to exposure and is also effective if given promptly after exposure. Post exposure vaccination should start immediately, ideally within 24 hours of exposure. Risk groups for pre and post exposure immunisation and the routinely recommended schedules are detailed in [Chapter 18 of the Green Book](#).

These temporary recommendations have been developed in light of recent global shortages of hepatitis B vaccine, including combination hepatitis A/B vaccine, which have severely impacted on the UK supply. These supply constraints do not affect the hexavalent vaccine (DTaP/IPV/Hib/HepB) due to be used in the routine childhood immunisation programme. These recommendations include advice on prioritisation of vaccine for those at highest, immediate need. Provision of post-exposure vaccination should not be deferred.

Summary of key principles for providers

Prioritise scarce supply for those at highest IMMEDIATE risk

- Section 1

Provide advice to individuals whose vaccination is deferred and flag them for recall

- Section 2

Advise other ways of avoiding exposure to hepatitis B

- Section 3

Use alternative vaccines where possible

- Section 4, tables 2-4

Use dose sparing schedules and defer routine boosters

- Section 5, table 5

Order and manage stock responsibly

- Section 6

1.Prioritisation of individuals at risk of hepatitis B

Infants born to hepatitis B infected mothers

Infants born to hepatitis B infected mothers are the highest priority for post-exposure vaccination as they are at greatest individual risk of infection; these infants have already been exposed to a substantial amount of infected blood during the birthing process.

Providing the birth dose of vaccine to babies born to hepatitis B infected mothers should not be delayed beyond 24 hours.

PHE STATEMENT FOR ORDERING VACCINE FOR BABIES BORN TO HEPATITIS B INFECTED MOTHERS

PHE recommends that there should be **no delay** in giving hepatitis B vaccine to babies born to hepatitis B mothers.

If you cannot get hepatitis B monovalent paediatric vaccine, alternative hepatitis B containing vaccines – including adult and combination vaccines - can be given safely.

If practitioners cannot order paediatric monovalent vaccine for a baby due a dose now, **you MUST** order alternative vaccine to ensure the baby can be vaccinated on time.

Other post exposure situations

For all other post exposure indications, an individual risk assessment is required to assess whether a significant exposure has occurred. In post-exposure situations where the hepatitis B status of the source is unknown, **urgent testing of the source**, where possible, should be conducted to inform the need for further vaccination of exposed person. Guidance on post-exposure vaccination (including need for hepatitis B immunoglobulin) is found in the **Green Book, Chapter 18, and Hepatitis B**.

Individuals who have been exposed to infection require prompt initiation of vaccination, ideally within 24 hours. If you are unable to get vaccine for a higher risk patient whose dose cannot be deferred, e.g. following a significant exposure to a known or unknown source, urgent referral of the patient to a setting where vaccine should be available is recommended. This could include (as appropriate):

- Emergency Department / Urgent Care Centre/ Walk in Centre / Minor Injuries Unit (particularly at weekends)
- NHS occupational health provider
- Genito-urinary medicine (GUM clinic)

Pre-exposure situations

For other pre-exposure indications, an individual risk assessment is required to assess whether vaccination should proceed straightaway or whether it could be deferred.

Assessment of individual risk and prioritisation

This prioritisation is provided to support decision-making on the basis of an assessment of the individual patient's risk. Many specific factors, detailed below, may alter the assessment and the overall decision on whether someone should be a priority for immediate vaccination requires some clinical judgement.

Prioritisation categories with relevant examples are described in table 1. These are based on a comprehensive assessment considering the following criteria:

- immediacy of exposure risk
- risk of acquiring infection
- risk of complications of infection
- immune response to vaccine products of varying antigen content
- vaccine availability and number of doses required
- likely compliance with vaccine schedule and follow up
- feasibility of delivery in settings
- likelihood of individual already being immune (including previous vaccine doses as well as infection)
- availability and effectiveness of non-vaccine preventative measures
- risk of onward transmission
- availability and access to post exposure advice and prophylaxis
- co-circulation of other blood-borne viruses

The likelihood of acquiring infection following exposure is dependent on several factors including the hepatitis B status of the source, or if unknown status, the prevalence in the implicated population, the hepatitis B immune status of the recipient, the mechanism and route of transmission – whether it is a significant exposure, the likely infecting dose and/or volume of potentially infected blood/body fluid. In general, the risk of acquiring infection from a significant exposure incident with a known infected source is higher than that from an unknown source and the urgency of vaccination is less for many pre-exposure situations.

Advice to individuals whose vaccination is deferred

For those individuals in whom vaccination is deferred, appropriate reassurance should be provided using the [patient information leaflet](#) as a resource. As always, advice about avoiding exposure should be given (see section 3). Individuals should also be aware how to access advice about post-exposure vaccination in the event of a specific exposure.

Where appropriate and feasible, a mechanism for tracking and recalling those patients who have had vaccination deferred should be put in place. Patient records should be flagged so that patients can be recalled to start or resume the vaccine course once supplies have improved. If

this is not possible, individuals should be advised to present at a later time point. Supply is expected to be returning to normal levels by early 2018.

Table 1: Prioritisation of individuals/groups

| Prioritisation | Exposure type | | Examples of individuals in this category (note this is not exhaustive but for illustration only) |
|----------------------------|---------------|---|---|
| 1 Highest risk and urgency | Post exposure | Substantial exposure to infected blood from a known hepatitis B infected source | Infants born to hepatitis B infected mothers |
| 2 | Post exposure | Other exposure to a known hepatitis B infected source | Needlestick or other sharps injury from known positive person, sexual exposure to an acute case of hepatitis B |
| 3 | Post exposure | Exposure to an unknown source | Needlestick injury from discarded needle in community, sexual assault, mass casualties from a major incident |
| | Pre-exposure | Priming for unavoidable, high and imminent risk | Clinical health care workers with regular blood exposure, particularly those performing exposure prone procedures (e.g. surgeons, dentists), and those working in certain settings (e.g. renal units, hospital laboratory workers). Other first responders required to attend major trauma with likely blood contamination. |
| | Pre-exposure | Priming for unavoidable, high and imminent risk, with high risk of onward transmission and co-circulating viruses e.g. HIV, HDV | Sex workers, MSM with multiple partners, PWID, prisoners, people travelling to endemic countries for medical treatment, patients on renal dialysis units. |
| 4 | Pre-exposure | Priming for those at lower risk and those that can access advice in the event of a recognised exposure | Household contacts of people with hepatitis B, most other health care workers and ancillary staff in UK healthcare settings, other occupations at risk of percutaneous exposures. |
| | Pre-exposure | Priming for those at lower risk or where risk may be avoided or delayed | Other travel to medium and high endemicity countries. Individuals with cirrhotic liver disease. |
| 5 Lowest risk and urgency | Pre-exposure | Boosting and reinforcing doses | For healthy individuals who have completed a primary course of immunisation (three doses). |

1. Measures other than vaccination to prevent infection

Where appropriate, individuals should be advised of other precautions that are effective in protecting them against hepatitis B. [The National Travel Health Network and Centre \(NaTHNaC\)](#) provides hepatitis B immunisation recommendations for travellers. Risk for travellers is low except where they undertake activities that put them at higher risk, particularly where hepatitis B is more common. These behaviours and activities include:

- unprotected sex
- exposure to blood or blood products through occupation, such as healthcare work
- exposure to contaminated needles through injecting drug use, or as a result of accessing medical or dental care
- long stay travel

Individuals, including travellers to hepatitis B endemic countries, should be reminded to avoid contact with blood and bodily fluids by:

- a) avoiding unprotected sexual intercourse i.e. use condoms during sex
- b) following safe injecting, sharps disposal and universal precautions in healthcare settings
- c) using appropriate protective precautions where contact is unavoidable e.g. due to occupation
- d) avoiding tattooing, piercing and acupuncture (unless sterile equipment is used)
- e) not sharing needles or other injection equipment (and instead use needle and syringe exchange services, transition to opiate substitution therapies)
- f) not sharing shaving equipment

Individuals, including travellers, should be aware that using precautions will also help protect against other blood and body fluid-borne viruses (BBV), such as HIV and hepatitis C, for which there are currently no vaccines.

Please visit the [NaTHNaC website](#) for indications for hepatitis B vaccination prior to travel. A risk assessment should be done on a case by case basis to determine whether vaccination against hepatitis B is indicated but it is unlikely to be available for travel purposes alone. A sterile medical equipment kit may be helpful for travellers when visiting resource poor areas with high endemicity of hepatitis B.

Individuals at risk, including travellers, should be informed about seeking advice, and consideration of post exposure vaccination if they may have been exposed to hepatitis B.

4. Use of alternative vaccines

To mitigate the shortage of hepatitis B vaccine and to preserve adult and paediatric hepatitis B vaccine stock for those at the highest risk and with the greatest ability to benefit, several alternative vaccine options can be considered.

Paediatric dosages are based on a lower dose of antigen needed to achieve an adequate immune response in children, rather than any concerns about safety. There are therefore no expected safety issues from using adult dose vaccines in children, which can be considered when paediatric vaccines are not available.

Many of these vaccine options will be off-label use of licensed products. For further information on off-label use of vaccines see:

<https://www.gov.uk/government/publications/off-label-vaccine-leaflets>

The advice tables that follow include advice for choice of vaccines for initiating pre-exposure and post exposure prophylaxis. In general, the choice of vaccine for completion of primary schedules and for boosting is similar, as vaccines can be used inter-changeably within the schedule.

The advice provided is not absolute; it requires some clinical judgment and hence is not presented in an algorithm, but in tables. The advice will be updated as vaccine availability changes.

Table 2: **Antigen content** of hepatitis B containing vaccines available in the UK

Table 3: **Post exposure options** for hepatitis B vaccination to preserve vaccine for groups most likely to benefit

Table 4: **Pre-exposure options** for hepatitis B vaccination to preserve vaccine for groups most likely to benefit

Table 2: Antigen content of hepatitis B containing vaccines available in the UK

| Formulation | Ages and group | Trade name | HepB vaccine antigen content (micrograms) | Volume (ml) | Manufacturer |
|---|--|---------------------|---|-------------|-----------------------------------|
| Monovalent HepB | Paediatric: 0-15 years | EngerixB® | 10 | 0.5 | GlaxoSmithKline (GSK) |
| Monovalent HepB | Paediatric: 0-15 years | HBVaxPRO® | 5 | 0.5 | Merck Sharp & Dohme Limited (MSD) |
| Combination HepA/HepB | Paediatric: 1-15 years | Twinrix Paediatric® | 10 | 0.5 | GSK |
| Combination HepA/HepB | Paediatric: 1-15 years | Ambirix® | 20 | 1.0 | GSK |
| Combination DTaP/IPV/Hib/HepB | Paediatric: 6 weeks -2 years | Infanrix hexa® | 10 | 0.5 | GSK |
| Monovalent HepB | Adult: 16 years and over | EngerixB® | 20 | 1.0 | GSK |
| Monovalent HepB | Adult: 16 years and over | HBVaxPRO® | 10 | 1.0 | MSD |
| Combination HepA/HepB | Adult: 16 years and over | Twinrix Adult® | 20 | 1.0 | GSK |
| Monovalent HepB Renal adjuvanted vaccine | Adult (15 years and over) renal pre-dialysis and dialysis patients | Fendrix® | 20 | 0.5 | GSK |
| Monovalent HepB Renal high antigen content | Adult renal pre-dialysis and dialysis patients | HBVaxPRO40® | 40 | 1.0 | MSD |

Table 3: Post-exposure options for hepatitis B vaccination in adults and children (to be read in conjunction with Table 18.7 of the Green Book)

| Post-exposure vaccination | Order of preference | Infants born to hepatitis B infected mothers | Other children exposed to a known or unknown source of hepatitis B | Adults exposed to a known or unknown source of hepatitis B |
|---|--|---|--|---|
| Urgent testing of the source should be done if their hepatitis B status is unknown. | 1 st | Paediatric monovalent HepB vaccine (EngerixB or HBVaxPRO) | Paediatric combination HepA/B vaccine (Twinrix paediatric) | Adult monovalent HepB vaccine (EngerixB or HBVaxPRO) |
| | 2 nd | Adult monovalent HepB vaccine (EngerixB or HBVaxPRO) | High dose paediatric HepA/B vaccine (Ambirix) | Adult combination HepA/B vaccine (Twinrix) |
| | 3 rd | Paediatric combination HepA/B vaccine (Twinrix paediatric) | Paediatric monovalent HepB vaccine (EngerixB or HBVaxPRO) | High dose paediatric HepA/B vaccine (Ambirix) |
| | 4 th | High dose paediatric or adult combination HepA/HepB vaccine (Ambirix or Twinrix) | Adult monovalent HepB vaccine (EngerixB or HBVaxPRO) | Two simultaneous doses of paediatric combination HepA/B vaccine (Twinrix Paediatric) |
| | 5 th | Combination DTaP/IPV/Hib/HepB (Infanrix hexa) | Adult combination HepA/HepB vaccine (Twinrix) | Renal HepB vaccine (Fendrix or HBVaxPRO40) |
| Considerations / rationale / other advice | <ul style="list-style-type: none"> • A full risk assessment should be undertaken taking into account hepatitis B status of source, significance of exposure, vaccination status of recipient and indications for vaccine (+/- hepatitis B immunoglobulin (HBIG)) given as recommended in Table 18.7 of the Green Book and Immunoglobulin Handbook • Urgent testing of the source, if their hepatitis B status is unknown or uncertain, should be done, preferably before vaccine is given; if source is hepatitis B surface antigen negative, first or further doses may not be required – see table 18.7 in the Green Book • Prompt vaccination is highly effective as post-exposure management (>90%) whereas hepatitis B specific immunoglobulin (HBIG) has much lower efficacy (~50%). Substituting vaccine with HBIG is not therefore recommended. • No immunogenicity data are available to support use of paediatric antigen content vaccine in adults post exposure • The birth dose of vaccine should never be delayed for infants born to hepatitis B infected mothers, as these infants have been exposed to a substantial volume of infectious blood during the birthing process. Paediatric monovalent HepB vaccine should be prioritised for the birth dose in infants born to hepatitis B infected mothers. *Combination DTP/IPV/Hib/HepB is licensed from 6 weeks of age and may be used for second and subsequent doses. In infants who have received the birth dose on time and where monovalent hepatitis B is not available, the second dose may be delayed to six weeks of age and given as DTP/IPV/Hib/HepB, with further doses given promptly at 12 and 16 weeks of age. Boosting at 12 months and/or pre-school can be safely deferred, although the recommended test for HBsAg at 12 months of age should be undertaken on time. • Combination HepA/HepB vaccine may be preferred if HepA vaccination is also indicated e.g. MSM, travellers, chronic liver disease • Simultaneous doses of lower antigen content vaccines should be given at the same site and are preferred to doses given separately to ensure compliance | | | |

Table 4: Pre-exposure options for hepatitis B vaccination in children and adults

| Order of preference | Children | Immunocompetent adults | Adults with immunosuppression | Adults of any age with renal failure who are pre-dialysis or on dialysis |
|---|---|--|---|---|
| 1 st | Paediatric combination HepA/B vaccine (Twinrix paediatric) | Adult monovalent HepB vaccine (unless requiring hepatitis A) (EngerixB or HBVaxPRO) | Renal HepB vaccine (Fendrix or HBVaxPRO40) | Renal HepB vaccine (Fendrix or HBVaxPRO40) |
| 2 nd | Paediatric monovalent HepB vaccine (EngerixB or HBVaxPRO) | Adult combination HepA/B vaccine (Twinrix) | Adult combination HepA/B vaccine (Twinrix) | Adult monovalent HepB vaccine (EngerixB or HBVaxPRO) |
| 3 rd | Adult monovalent HepB vaccine (EngerixB or HBVaxPRO) | High dose paediatric HepA/B vaccine (Ambirix) | High dose paediatric HepA/B vaccine (Ambirix) | High dose paediatric or adult combination HepA/HepB vaccine (Ambirix or Twinrix) |
| 4 th | High dose paediatric or adult combination HepA/HepB vaccine | Paediatric combination HepA/HepB vaccine (Twinrix paediatric) | Adult monovalent HepB vaccine (EngerixB or HBVaxPRO) | Two simultaneous doses of paediatric combination HepA/HepB vaccine |
| Considerations / rationale / other advice | <ul style="list-style-type: none"> • No immunogenicity data are available to support use of paediatric antigen content vaccine in adults pre-exposure • Paediatric combination HepA/B vaccine is preferred for pre-exposure use in children to preserve monovalent paediatric HepB vaccine for infants born to infected mothers; children may also have a (future) indication for hepatitis A vaccine too (travel to endemic countries) • Those with renal failure and those who are older and immunocompromised (including HIV+) may have a lower response to vaccine and are at higher risk of developing either chronic infection or serious complications, so higher dose vaccines may be preferred. If not available, double doses of monovalent vaccine should be avoided. Post vaccination testing can be undertaken and reinforcing doses given if they have a suboptimal response to vaccine (see Green Book chapter 18) • Combination HepA/HepB vaccine may be preferred if hepatitis A vaccine is also indicated e.g. MSM, travellers, chronic liver disease • Vaccines can be used interchangeably e.g. if a schedule is started with HepA/HepB vaccine it can be continued and/or completed with monovalent HepB vaccine • At-risk individuals, particularly those at occupational risk, should be advised to follow post-exposure local guidance in the event of a significant exposure (see also table 18.7 in chapter 18 of the Green Book) • Give appropriate reassurance to patients who have had their vaccine dose deferred, using the patient information leaflet that has been developed | | | |

5. Use of alternative schedules, timing of doses and boosting intervals

For pre-exposure vaccination a range of schedules are commonly used, depending on the level of risk, the need for rapid protection and the likely compliance with completing a course ([Green Book, Chapter 18](#)). In general the final immune response is better with more prolonged schedules, and so fewer doses are required to achieve adequate protection. To mitigate the current shortage of hepatitis B vaccine and to preserve adult and paediatric hepatitis B vaccine for those at the highest risk and with the greatest ability to benefit, using schedules with fewer doses over a longer period is preferred.

Post-exposure vaccination, including for babies of hepatitis B infected women, is generally offered at a zero, one and two month (or four and eight weeks) schedule. Evidence suggests that this schedule is highly effective at preventing infection if first dose is given promptly, ideally within 24 hours. Greater flexibility can be tolerated around the one and two month follow up doses, but vaccines should be scheduled as close as possible to the target days to maximize compliance. In some post-exposure situations, an additional dose is offered at 12 months to provide protection against continued on-going risk, but this can be deferred for up to a year until vaccine supply improves. However, in those at very high risk, it is important to not defer the test to confirm whether or not the individual has acquired infection. For babies born to infected women, therefore, a blood test for HBsAg should be undertaken at or just after the age of one year, so that children can be promptly referred for specialist care.

For pre-exposure vaccination, response to a zero, one and six month schedule is excellent and is the preferred schedule during this period of supply constraint for individuals whose risk of exposure can be delayed.

Over time, the UK recommendations on the need for routine boosting have changed ([Green Book, Chapter 18](#)). Although knowledge about the duration of protection against infection and disease is still incomplete, studies demonstrate that, among successfully vaccinated immunocompetent individuals, protection against chronic infection persists for many years. Therefore, in almost all circumstances, the benefit of a routine booster is likely to be marginal and therefore, routine booster doses can be safely deferred for at least 12 months. Where appropriate those patients who have had booster vaccination deferred should be flagged for recall at a later date.

This advice is summarised in Table 5: **Dose sparing options for completion of pre-exposure schedules and boosting**

Table 5 Dose sparing options for completion of pre-exposure schedules and for boosting

| Dose sparing option | Rationale / Examples | Other advice |
|---|---|---|
| Schedule options for pre-exposure primary immunisation | | |
| Avoid using 0, 7, 21 day (super-accelerated) schedule - preferentially use standard (0, 1, 6 months) or, if rapid protection required, the accelerated schedule (0, 1, 2 months) | <ul style="list-style-type: none"> • The super-accelerated schedule uses 3 doses in 1 month which is wasteful in the current supply climate. Because the immune response following 3 doses with the super accelerated schedule is lower than that with the standard or accelerated schedules, deferral of the reinforcing/booster dose at 12 months is more risky • For most indications, particularly travel and occupational health, there should be sufficient time to use the standard or accelerated course • Limited data suggest that, in healthy adults over 18 years, two doses at 0 and 1 months will provide equivalent protection to 3 doses at the super-accelerated schedule | <ul style="list-style-type: none"> • Give appropriate reassurance to patients who have had their vaccine dose deferred, using the patient information leaflet that has been developed • Remind workers at occupational risk of universal precautions to prevent hepatitis B infection and other blood-borne viruses (HIV and hepatitis C) which are not preventable by vaccine but have similar transmission routes • Remind at-risk individuals, particularly those at occupational risk, to follow post-exposure local guidance in the event of a significant exposure (see also table 18.7 in chapter 18 of the Green Book) • Remind travellers of other precautions to prevent hepatitis B and other blood-borne viruses (HIV and hepatitis C) which are not preventable by vaccine but have similar transmission routes. (See section 1.1 above and NATHNAC for further advice) |
| Defer third dose of primary pre-exposure immunisation to at least 6 months in those not at immediate risk of exposure who can recognise exposure and access care promptly | <ul style="list-style-type: none"> • Equivalent protection achieved after 3 doses with 0,1 6 month and 0,1,2 month schedules • In healthy adults and children, a high proportion will have started to respond after a second dose of hepatitis B vaccine and a completing dose given after an exposure should provide rapid protection. | |
| Boosting | | |
| In immunocompetent individuals who have completed a primary immunisation course at 0, 1, 2 months, boosting can be deferred to 24 months | <ul style="list-style-type: none"> • Although knowledge about the duration of protection against infection and disease is still incomplete, studies demonstrate that, among successfully vaccinated immunocompetent individuals, protection against chronic infection persists for 20-30 years or more. Therefore WHO have concluded that there is no compelling evidence for recommending a booster dose of hepatitis B vaccine in routine immunisation programmes. | |
| In immunocompetent healthcare and lab workers, who have completed a primary immunisation course, defer the single booster dose currently recommended for five years after the primary course for at least another 12 months | | |

6. Vaccine stock management and ordering

In the UK, licensed hepatitis B monovalent and combination hepatitis A/B vaccines are provided by Merck Sharp & Dohme Limited (MSD) or GlaxoSmithKline (GSK). These vaccines are not centrally procured or supplied by PHE. They should be ordered direct from manufacturers or wholesaler companies. PHE does not hold any emergency stockpile. If your usual vaccine cannot be obtained from your usual supplier / manufacturer try an alternative supplier and/or an alternative vaccine. To register to become a customer of GSK or MSD visit <http://www.aah.co.uk/shop/en-GB/aahpoint/opening-an-aah-account> or telephone the AAH Customer Services number: 0344 561 8899, stating which company you would like to place an order with.

Responsible ordering will help preserve scarce stock for those at greatest, immediate need.

Pharmacists, clinic/practice managers, clinical leads and procurement teams are asked to:

- coordinate and monitored stock use across the service to ensure that scarce stock is used responsibly
- exercise constraint in ordering vaccines and observe any ordering restrictions
- only order essential vaccine stock, even if this is below the maximum quota, and only request additional vaccine doses, above the quota, in exceptional cases
- order small amounts of vaccine more frequently and avoid stockpiling
- accept and use alternative vaccines and presentations in place of the preferred or usual options e.g. combination hepatitis A/B vaccine, and multi-dose vials rather than pre-filled syringes
- establish a system to track patients for whom vaccination has been deferred so that they can be recalled when the supply situation improves

PHE and the Department of Health have been working with both vaccine manufacturers to institute ordering restrictions (maximum ordering quantities, MOQ) according to customer type. These have been introduced to a) prioritise vaccine for post exposure vaccination (particularly infants born to infected mothers); and b) to prevent stock from being exhausted rapidly. The allocation of MOQs is based on an assessment of the proportion of vaccines used by those customers for individuals in the highest priority groups (see table 1). As a consequence, some providers that map to a particular customer type (e.g. NHS Trusts, private hospitals) will have some restriction while other customers, (e.g. GPs, universities, retail pharmacies) may not be able to order stock of adult vaccine without an override request.

A mechanism will be in place to allow for exceptional orders of vaccine through your supplier if:

- a) there is an urgent and immediate need for an individual following a thorough risk assessment, for a baby born to an infected mother
- b) as part of an outbreak response e.g. transmission event in a renal dialysis unit; or
- c) if you can justify and/or verify that your service provides vaccination for higher priority groups e.g. if you provide OH services to healthcare workers.

To request a manual override, providers/purchases should call the manufacturer or wholesaler's customer service number once a stock request is refused. As appropriate, customer services may request verification/ justification of the exceptional request and may escalate to the medical team to release additional doses.

Hepatitis B specific immunoglobulin remains available through Public Health England.

Information on how to request immunoglobulin for babies:

<https://www.gov.uk/government/publications/hepatitis-b-requesting-issue-of-immunoglobulin-for-infants>

Information on how to request immunoglobulin for other purposes:

<https://www.gov.uk/government/publications/immunoglobulin-when-to-use/rabies-and-immunoglobulin-rigs-changes-to-the-current-service>

Other resources

The Green Book: Immunisation against Infectious Disease

<https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book>) chapter 18 (hepatitis B)

Immunoglobulin handbook for hepatitis B:

<https://www.gov.uk/government/publications/immunoglobulin-when-to-use>

NaTHNaC travel vaccination recommendations by country:

<https://travelhealthpro.org.uk/countries>