

| National Immunisation Advisory Committee (NIAC) |      |  |   |  |
|---|------|--|---|--|
| Immunisation Guidelines                         |      |  |   |  |
| August 2014                                     |      |  |   |  |
| Chapter   | Page | Previous text  | New or added text   | Reason for change  |
| Anaphylaxis                                     | 1    | Those ≥ 100 kgs can be given 1mg IM (use 21G, 37mm needle)<br>Suggested kit<br>Needles 3 x 16mm, 3 x 25mm, 3 x 37mm    | Those ≥ 100 kgs can be given 1mg IM (use 21G, 37-40mm needle)<br>Suggested kit<br>Needles 3 x 16mm, 3 x 25mm, 3 x 37- 40mm  | Range of length of needles available   |
| 2. General Immunisation Procedures              | 2    | <b>Table 2.1</b><br>MenC at 4,6 and 13 months<br>HPV x 3 doses at 12-13 years<br>Tdap at 11-14 years                   | <b>New Table 2.1</b><br>MenC at 4,13 months and 12-13 years<br>HPV x 2 doses at 12-13 years<br>Tdap at 12-13 years  | Change to MenC schedule due to waning immunity in adolescence<br>Change to 2 dose HPV schedule based on immune response in young children<br>Consistency in adolescent age group |
|   | 4    | <b>Table 2.2</b><br>Interval between MenC dose 1 and 2 – 2 months<br>dose 2 and 3 - 2 months and over 12 months of age | <b>New Table 2.2</b><br>Interval between MenC dose 1 and 2 – 2 months and over 12 months of age<br>dose 2 and 3 - > 2years  | Change to MenC schedule due to waning immunity in adolescence  |
|   | 6    | Meningococcal C<br>A single dose of Men C vaccine should be given to unvaccinated persons aged 1 to 23 years           | Meningococcal C<br>A single dose of Men C vaccine should be given to unvaccinated persons aged 1 to < 12 years.<br>A child who has had a MenC conjugate containing vaccine (MenC or MenACWY) at 10 years or older does not need an adolescent booster.<br>Those aged 13 years to <23 years require a single dose of MenC vaccine if they have not been previously vaccinated. | Change to MenC schedule due to waning immunity in adolescence  |
|   | 7    | <b>Table 2.3</b><br>MenC 1 dose (up to 23 years of age)  | <b>New Table 2.3</b><br>MenC age 10 - <18 years<br>1 dose (if given after 10 years of age, adolescent MenC booster not required)  | Adequate immune response   |

|                          |           |   |  |  |
|--------------------------|-----------|---|--|--|
|                          | <b>8</b>  | Immunoglobulin administration may impair the efficacy of live attenuated virus vaccines such as MMR and varicella for a period of at least 6 weeks and up to 3 months.  | Immunoglobulin administration may impair the efficacy of MMR and varicella live attenuated virus vaccines.   | Clarification re intervals between antibody products                     |
|                          | <b>13</b> | <p><b>Human immunoglobulin</b><br/>HNIG may interfere with the immune response to live viral vaccines except BCG, and yellow fever.</p> <p>MMR or varicella vaccine should not be given from 2 weeks before to 6months after injection of HNIG as they may interfere with the immune response.</p> <p><b>Specific immunoglobulins</b><br/>No text</p> | <p><b>Human immunoglobulin</b><br/>HNIG may interfere with the immune response to live viral vaccines except BCG, <b>rotavirus</b> and yellow fever.</p> <p>MMR or varicella vaccine should not be given from 2 weeks before to <b>5 -11 months</b> after injection of HNIG as they may interfere with the immune response (see Table 2.4).</p> <p><b>Specific immunoglobulins</b><br/><b>MMR or varicella vaccine should not be given from 2 weeks before to 3- 6 months after specific immunoglobulins as they may interfere with the immune response (see Table 2.4).</b></p> <p><b>New Table 2.4</b></p> | Clarification re intervals between antibody products                     |
| 10. Human papillomavirus | 6/7       | <p><b>Dose and route of administration</b></p> <p><b>HPV2</b><br/>Three doses (0.5ml) at 0, 1 and 6 months by IM injection in the deltoid region. If flexibility in the schedule is necessary, the second dose can be administered at 1-2.5 months and the third dose at 5-12 months after the first dose.</p>  | <p><b>Dose and route of administration</b><br/><b>The dose is 0.5 ml by IM injection in the deltoid region. The number of doses depends on the age.</b></p> <p><b>HPV2</b><br/><b>Age 9 - &lt;15</b><br/>Two doses at 0 and 6 months.<br/><b>If flexibility in the schedule is necessary, the second dose can be administered 5-7 months after the first dose.</b></p> <p><b>Age 15 and older</b><br/>Three doses at 0, 1 and 6 months<br/>If flexibility in the schedule is necessary, the</p>  | Change to 2 dose HPV schedule based on immune response in young children |

|               |   |  |  |   |
|---------------|---|--|--|---|
|               |   | <p><b>HPV4</b><br/>Three doses (0.5ml) at 0, 2 and 6 months by IM injection in the deltoid region. If flexibility in the schedule is necessary the second dose can be given at least one month after the first dose and the third dose given at least three months after the second dose. All three doses should be given within one year.</p> <p>Less than 3 doses of HPV vaccine might provide less protection against HPV vaccine types than a complete 3 dose course of HPV vaccine.</p> | <p>second dose can be administered at 1-2.5 months and the third dose at 5-12 months after the first dose.<br/><b>There is no evidence to support a two dose schedule in those aged 15 and older.</b></p> <p><b>HPV4</b><br/><b>Age 9 - &lt;15</b><br/>Two doses at 0 and 6 months.<br/>If the second vaccine dose is administered earlier than 6 months after the first dose, a third dose should always be administered at least three months after the second dose.<br/><b>Age 15 and older</b><br/>Three doses at 0, 2 and 6 months.<br/>If flexibility in the schedule is necessary the second dose can be given at least one month after the first dose and the third dose given at least three months after the second dose. All three doses should be given within one year.</p> <p><b>There is no evidence to support a two dose schedule in those aged 15 and older.</b></p> <p>Less than <b>the required number of</b> doses of HPV vaccine will provide less protection against HPV vaccine types than a complete course of HPV vaccine.</p> |   |
| 11. Influenza | 6 | Those with confirmed egg anaphylaxis or egg allergy can be given an influenza vaccine with an ovalbumin content <0.06µg per dose,see Table 11.2. Vaccines with ovalbumin content equal to or more than   | Those with confirmed egg anaphylaxis or egg allergy can be given an influenza vaccine with an ovalbumin content <0.1 micrograms per dose,see Table 11.2. Vaccines with ovalbumin content equal to or more than 0.1   | Consistency with Australian and Canadian guidance |

|                   |           |  |  |                                  |
|-------------------|-----------|--|--|----------------------------------|
|                   |           | 0.06 µg per dose or where content is not stated should not be used in egg-allergic individuals.  | <b>micrograms</b> per dose or where content is not stated should not be used in egg-allergic individuals.  |                                  |
| 12. Measles       |           | MMR should be deferred for at least 3 months after receipt of low dose immunoglobulin, 6 months after red cell transfusion and 11 months after high dose immunoglobulin (as used for e.g. Kawasaki Disease).   | MMR should be deferred for at least 3 months after receipt of low dose immunoglobulin, 6 months after red cell transfusion and 11 months after high dose immunoglobulin (as used for e.g. Kawasaki Disease) <b>see Chapter 2 Table 2.4.</b>  | Reference to Chapter 2 Table 2.4 |
| 13. Meningococcal | <b>8</b>  | No text<br><br><b>Table 13.1</b>   | <b>There is evidence that there is a satisfactory primary immune response to one dose in infants. However, because of waning immunity, booster doses are necessary. The recommended schedule is 3 doses (4 months, 13 months and 12 years of age).<br/>New Table 13.1</b>  |                                  |
|                   | <b>9</b>  | <b>Table 13.2</b>  | <b>New Table 13.2 Meningococcal ACWY vaccine schedule by age and vaccine</b>   |                                  |
|                   | <b>10</b> | <p>1. <i>Those aged 2-13 months</i><br/><i>MenC vaccine</i> is recommended as part of the primary immunisation schedule at 4 and 6 months with a booster at 13 months of age.</p> <p>2. <i>Those aged 1 to &lt; 23 years</i><br/><i>MenC vaccine</i> (1 dose) is recommended for all those who are unvaccinated.</p> | <p>1. <i>Children (routine)</i><br/><i>MenC vaccine</i> is recommended as a primary course at 4 months with <b>boosters at 13 months and 12 years of age.</b></p> <p>2. <i>Unvaccinated children aged 12 months to &lt; 12 years (Table 13.1)</i><br/><i>MenC vaccine</i> (1 dose) is recommended for unvaccinated children aged 12 months up to 12 years of age.</p> <p>A child who has had a MenC containing conjugate vaccine (MenC or MenACWY) at 10 years or older does not need an adolescent booster because they have adequate levels of antibody which should persist until</p> |                                  |

|                      |          |   |  |                                 |
|----------------------|----------|---|--|---------------------------------|
|                      |          |   | <p>adulthood.</p> <p><i>Unvaccinated persons aged 12 to &lt;23 years:</i></p> <p><i>MenC vaccine (1 dose) is recommended for all unvaccinated persons aged 13 up to 23 years of age.</i></p> |                                 |
|                      |          | <p><b>Booster doses</b><br/><b>MenC vaccine</b></p> <p>A booster dose is routinely recommended at 13 months of age for children vaccinated in the first year of life.</p> | <p><b>Booster doses</b><br/><b>MenC vaccine</b></p> <p>Booster doses are routinely recommended at 13 months and 12 years of age for children vaccinated in the first year of life.</p>       |                                 |
| <b>23. Varicella</b> | <b>7</b> | <p>Precautions</p> <p>2. Recent (3-11months) receipt of antibody containing blood product (see Chapter 2).</p>  | <p>2. Recent (3-11months) receipt of an antibody product (see Chapter 2 <b>Table 2.4</b>).</p>   | Reference to Chapter2 Table 2.4 |

**Table 2.1** Recommended childhood immunisation schedule 2014

| Age                          | Immunisations               | Comment      |
|------------------------------|-----------------------------|--------------|
| Birth                        | BCG                         | 1 injection  |
| 2 months                     | DTaP/Hib/IPV/Hep B + PCV    | 2 injections |
| 4 months                     | DTaP/Hib/IPV/Hep B + MenC   | 2 injections |
| 6 months                     | DTaP/Hib/IPV/Hep B + PCV    | 2 injections |
| 12 months                    | MMR + PCV                   | 2 injections |
| 13 months                    | MenC + Hib                  | 2 injections |
| 4 - 5 years                  | DTaP/IPV + MMR              | 2 injections |
| 12 -13 years<br>(girls only) | HPV x 2 doses over 6 months | 2 injections |
| 12 -13 years                 | Tdap                        | 1 injection  |
| 12 - 13 years                | MenC                        | 1 injection  |

|       |   |
|-------|---|
| BCG   | Bacille Calmette Guerin vaccine                                       |
| DTaP  | Diphtheria, Tetanus and acellular Pertussis vaccine                   |
| Hib   | Haemophilus influenzae b vaccine                                      |
| IPV   | Inactivated Polio Virus vaccine                                       |
| Hep B | Hepatitis B vaccine   |
| HPV   | Human Papillomavirus vaccine  |
| MenC  | Meningococcal C vaccine   |
| MMR   | Measles, Mumps and Rubella vaccine                                    |
| PCV   | Pneumococcal Conjugate Vaccine  |
| Tdap  | Tetanus, low-dose diphtheria and low-dose acellular pertussis vaccine |

Table 2.2 Optimal and Minimum recommended ages and intervals between doses

|  | Dose 1                    |                       | Dose 1 to Dose 2                     |                                     | Dose 2 to Dose 3                                      |  |
|--|---------------------------|-----------------------|--------------------------------------|-------------------------------------|---|--|
|  | Optimal age               | Minimum age           | Optimal interval                     | Minimum interval                    | Optimal interval                                      | Minimum interval                       |
| Diphtheria (D)<br>Tetanus (T)<br>Pertussis(aP)<br>IPV<br>Hib<br>Hepatitis B<br>(as 6 in 1 vaccine) | 2 months                  | 6 weeks               | 2 months                             | 4 weeks                             | 2 months<br>(and 4 months after 1 <sup>st</sup> dose) | 8 weeks<br>(and 16 weeks after Dose 1) |
| Men C  | 4 months                  | 6 weeks               | 2 months (and over 12 months of age) | 4 weeks (and over 12 months of age) | > 2 years   | 8 weeks                                |
| MMR 1  | 12 months                 | 6 months <sup>1</sup> | 1 month                              | 4 weeks <sup>2</sup>                |   |  |
| PCV  | 2 months                  | 6 weeks               | 2 months                             | 4 weeks                             | 2 months  | 8 weeks (and over 12 months of age)    |
| HPV  | See Chapter 10 Table 10.1 |                       |                                      |                                     |   |  |

<sup>1</sup> Children can be vaccinated with MMR before their first birthday during a measles outbreak. If so they should have a repeat MMR vaccination at 12 months of age, at least one month after the first vaccine, with a further dose at 4-5 years of age.

<sup>2</sup> If a child aged <18 months receives a second MMR vaccine within 3 months of the first MMR, a third MMR should be given at 4-5 years of age.

Table 2.3 Catch-up schedule for children and adults

| Vaccine                            | 4 months to <12 months   | 12 months to < 4 years  | 4 to <10 years  | 10 to <18 years   | 18 years and older                                      |
|------------------------------------|--|---|---|---|---|
| <b>BCG</b>                         | 1 dose   | 1 dose  | 1 dose  | 1 dose<br>(up to 15 years of age if in low risk group or up to 35 years of age if in high risk group) | 1 dose<br>(up to 35 years of age if in high risk group) |
| <b>6 in 1 (DTaP/IPV/Hib/Hep B)</b> | 3 doses<br>2 months apart  | 3 doses<br>2 months apart   | 3 doses<br>2 months apart   |   |   |
| <b>Men C</b>                       | 1 dose   | 1 dose  | 1 dose  | 1 dose (if given after 10 years of age, adolescent MenC booster not required)                         | 1 dose<br>(up to 23 years of age)                       |
| <b>PCV</b>                         | 2 doses<br>2 months apart  | 1 dose<br>(omit if >2 years of age <sup>2</sup> )   |   |   |   |
| <b>MMR<sup>3</sup></b>             |  | 1 dose  | 2 doses<br>1 month apart  | 2 doses<br>1 month apart  | 2 doses<br>1 month apart <sup>4</sup>                   |
| <b>Tdap/IPV</b>                    |  |   |   | 3 doses<br>1 month apart  | 1 dose <sup>5</sup>                                     |
| <b>Td/IPV</b>                      |  |   |   |   | 1 month after Tdap/IPV                                  |
| <b>NOTE</b>                        | <i>Continue with routine childhood immunisation schedule from 12 months.</i> | <i>Continue with routine school immunisations [4 in 1 (DTaP/IPV) at least 6 months and preferably 3 years after primary course, MMR at least 1 month after previous dose]</i> | <i>Continue with routine school immunisations [4 in 1 (DTaP/IPV) at least 6 months and preferably 3 years after primary course]</i> | <i>Boosters of Tdap/IPV 5 years after primary course and Tdap 10 years later</i>                      |   |

<sup>1</sup>One dose of single Hib vaccine may be given to children over 12 months of age and up to 10 years of age if this is the only vaccine they require

<sup>2</sup>Unless at increased risk

<sup>3</sup>The second dose of MMR is recommended routinely at 4-5 years but may be administered earlier. Children vaccinated before their first birthday in the case of an outbreak should have a repeat MMR vaccination at 12 months of age, at least one month after the first vaccine with a further dose at 4-5 years of age. If a child aged <18 months receives a second MMR vaccine within 3 months of the first MMR a third MMR should be given at 4-5 yrs of age.

<sup>4</sup>For health care workers born in Ireland since 1978 or born outside Ireland; and for adults from low resource countries, without evidence of two doses of MMR vaccine



15/08/14

<sup>5</sup> Only one dose of Tdap/IPV is required due to likely previous exposure to pertussis infection

| Preparation                     | Route     | Dose             | Estimated IgG mgs/kg | Interval (months) |
|---------------------------------|-----------|------------------|----------------------|-------------------|
| <b>Blood products</b>           |           |                  |                      |                   |
| Washed RBCs                     | IV        | 10mls/kg         | Negligible           | 0                 |
| Packed RBCs                     | IV        | 10mls/kg         | 60                   | 5                 |
| Plasma & platelets              | IV        | 10mls/kg         | 160                  | 7                 |
| <b>HNIG</b>                     |           |                  |                      |                   |
| Immune deficiencies             | IV, SC    |                  | 300-400              | 8                 |
| ITP treatment                   | IV        | 400mgs/kg/day    | 400                  | 8                 |
|                                 |           | 1,000 mgs/kg/day | 1,000                | 10                |
| Kawasaki disease                | IV        |                  | 1,600-2,000          | 11                |
| Measles                         | SC, IM    | 0.6ml/kg         |                      | 5                 |
| <b>Specific immunoglobulins</b> |           |                  |                      |                   |
| Cytomegalovirus                 | IV        | 3mls/kg          | 150                  | 6                 |
| Hepatitis B                     | IM        | 100- 500 IU      |                      | 3                 |
| Rabies                          | IM, wound | 20 IU/kg         |                      | 4                 |
| Tetanus                         | IM        | 250 - 500 IU     | 10                   | 3                 |
| Varicella                       | IM        | 15-25 IU/kg      |                      | 5                 |

**Table 2.4** Recommended intervals between antibody products and MMR or Varicella vaccines

**Table 13.1. Routine and catch up schedule for Meningococcal C vaccine**

| Routine schedule |                 | Catch up schedule     |                                     |
|------------------|-----------------|-----------------------|-------------------------------------|
| Age              | Number of doses | Age                   | Number of doses                     |
| 4 months         | 1 dose*         | 5 - <12 months        | 1 dose*                             |
| 12 months        | 1 dose          | 12 months - <12 years | 1 dose                              |
| 12 years         | 1 dose          | 12 - <23 years        | 1 dose if not previously vaccinated |

\*Meningitec does not provide adequate protection in infancy and is not recommended for use <12 months.

**Table 13.2 Meningococcal ACWY vaccine schedule by age and vaccine**

| Vaccine            | Menveo   | Nimenrix                   |
|--------------------|--|----------------------------|
| Age                | From 2 months  | From 12 months             |
| 2- <12 months      | Not recommended for those at increased medical risk<br>For contacts or travel see below  | Not recommended            |
| 1 to 10 years      | 1 to 3 doses at 2 month intervals, 2 months after MenC – see below                       | 1 dose 2 months after MenC |
| 11 years and older | 1 to 3 doses at 2 month intervals, 2 months after MenC– see below                        | 1 dose 2 months after MenC |
| Booster doses      | For those with medical risk condition see below  | Need not determined        |
|                    | Either vaccine may be given if previously vaccinated with polysaccharide MenACWY vaccine |                            |