Fiji National Immunisation Policy and Procedure Manual
2013 - 2016
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## 1. Abbreviations

<table>
<thead>
<tr>
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<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEFI</td>
<td>Adverse event following immunisation</td>
</tr>
<tr>
<td>AFR</td>
<td>Acute Fever and Rash</td>
</tr>
<tr>
<td>AFP</td>
<td>Acute flaccid paralysis</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacillus calmette-guérin</td>
</tr>
<tr>
<td>CCM</td>
<td>Cold chain monitors</td>
</tr>
<tr>
<td>CRS</td>
<td>Congenital rubella syndrome</td>
</tr>
<tr>
<td>DMO</td>
<td>Divisional Medical Officer</td>
</tr>
<tr>
<td>DTP</td>
<td>Diphtheria-tetanus-pertussis vaccine</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded Programme on Immunisation</td>
</tr>
<tr>
<td>FPBS</td>
<td>Fiji Pharmaceutical and Biomedical Services</td>
</tr>
<tr>
<td>FSMed</td>
<td>Fiji School of Medicine, FSN - Fiji School of Nursing</td>
</tr>
<tr>
<td>GAVI</td>
<td>Global alliance for vaccine and immunisation</td>
</tr>
<tr>
<td>HBV</td>
<td>Hepatitis B vaccine</td>
</tr>
<tr>
<td>Hib</td>
<td>Haemophilus influenzae type b</td>
</tr>
<tr>
<td>ICC</td>
<td>Interagency co-ordination committee</td>
</tr>
<tr>
<td>IgM</td>
<td>Immunoglobulin M</td>
</tr>
<tr>
<td>IM</td>
<td>Intramuscular</td>
</tr>
<tr>
<td>mL</td>
<td>Millilitre</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MR</td>
<td>Measles-rubella vaccine</td>
</tr>
<tr>
<td>NEC</td>
<td>National Executive Committee of the Ministry of health</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-government organization</td>
</tr>
<tr>
<td>NT</td>
<td>Neonatal tetanus</td>
</tr>
<tr>
<td>OPV</td>
<td>Oral polio vaccine</td>
</tr>
<tr>
<td>PHIS</td>
<td>Public Health Information System</td>
</tr>
<tr>
<td>SDMO</td>
<td>Sub Divisional Medical Officer</td>
</tr>
<tr>
<td>SSPE</td>
<td>Subacute sclerosing panencephalitis</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Td</td>
<td>Tetanus-diphtheria vaccine</td>
</tr>
<tr>
<td>TT</td>
<td>Tetanus toxoid vaccine</td>
</tr>
<tr>
<td>VAPP</td>
<td>Vaccine associated paralytic polio</td>
</tr>
<tr>
<td>VPD</td>
<td>Vaccine preventable disease</td>
</tr>
<tr>
<td>VVM</td>
<td>Vaccine vial monitor</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations children’s fund</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
2. Acknowledgements

The Family Health Unit would like to acknowledge the following for their tremendous contributions towards the completion and implementation of the Immunisation Policy and Procedure Manual.

- Dr Joseph Kado, Head of Paediatrics Unit CWMH, and Chair of the Paediatrics Clinical Service Network
- Dr Lisi Tikoduadua, Consultant Paediatrician
- WHO
- UNICEF
- FHSSP
- Dr Rachel Renita Devi, Acting National Advisor Family Health Unit
- Policy Unit Ministry of Health
- Fiji’s Vaccine Providers

Without the support of the above respective people, the development of this policy wouldn’t have been possible.
3. Vision Statement
The core intention of MOH is to deliver safe, potent, reliable and free immunisation services available and accessible to all eligible children, women and all the population at large regardless of their ethnicity, race, religion, gender, geographical location and political affiliations throughout Fiji.

4. Mission Statement
To reduce morbidity and mortality of vaccine preventable diseases especially those in the Expanded Programme of Immunisation (EPI) with the long term aim of eliminating and/or completely eradicating them as well as to improve child health status.

5. Values
The Ministry of Health strives to uphold customer focus, respect for human dignity, quality, equity, integrity, responsiveness and faithfulness as paramount values for the achievement of its mission and vision.

6. Preamble
This policy aims to promote and ensure that there is universal access to potent immunisation services for all children in Fiji.
7. Introduction and History of the Immunisation Program

Over 200 years ago the benefits of immunisation programs were realised with the introduction of the smallpox vaccine. As a result the immunisation program in Fiji has continued to reduce the burden of certain vaccine preventable diseases; table 1 outlines significant milestones for the immunisation program. In 2013 the Expanded Programme on Immunisation (EPI) in Fiji focuses on 12 infectious diseases: diphtheria, measles, rubella, pertussis, hepatitis B, haemophilus influenza type b, polio, tetanus, pneumococcal disease, rotavirus, human papillomavirus and tuberculosis see annex 1 for characteristics of these diseases. These diseases are targeted in public health programmes as they contributed to a high burden of disease and had associated high disability and mortality outcomes (annex 2 Epidemiology of VPD’s).

Vaccination not only protects individuals but also offers protection to the community, by increasing the level of immunity and reducing the spread of infection. It is important that healthcare personnel take every opportunity to immunise all children. It is also important that community members are aware of the proven effectiveness of immunisation in saving lives and prevent serious morbidity and mortality. All immunisations used in the Fijian immunisation program are safe and effective (see annex 3 vaccine efficacy and annex 4 characteristics of vaccines) and World Health Organisation (WHO) prequalified.

This document outlines the policy statements of the Ministry of Health and outlines the objectives and targets of the immunisation program in 2013. The Immunisation policy defines the goals, targets and objectives of the immunisation program. This policy also provides procedures for vaccine providers to implement the policy at service provide level.

The success of the effectiveness of well-managed immunisation programmes is illustrated in the certification of the Western Pacific Region as polio free in October 2000. And the adoption of a measles elimination and hepatitis B control strategy.

### Table 1 outlines major EPI milestones.

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1880’s</td>
<td>• Small Pox vaccinators trained in Fiji</td>
<td>History of Smallpox and its Eradication ; <a href="http://whqlibdoc.who.int/smallpox/9241561106.pdf">http://whqlibdoc.who.int/smallpox/9241561106.pdf</a></td>
</tr>
<tr>
<td></td>
<td>• DTP</td>
<td></td>
</tr>
<tr>
<td>1963</td>
<td>• OPV</td>
<td>Personal Communication Dr Lisi Tikoduadua Consultant Paediatrician, 2012.</td>
</tr>
<tr>
<td>Pre 1960’s</td>
<td>• BCG</td>
<td></td>
</tr>
<tr>
<td>Early 1970’s</td>
<td>• Monovalent Rubella vaccine introduced for class 6 girls</td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>• Monovalent measles vaccine introduced for infants aged 9 months of age</td>
<td></td>
</tr>
<tr>
<td>Early 1980’s</td>
<td>• Plasma derived Hepatitis B vaccine introduced</td>
<td>Personal Communication Dr Lisi Tikoduadua Consultant Paediatrician, 2012.</td>
</tr>
<tr>
<td>1989</td>
<td>• Hepatitis B vaccine introduced</td>
<td>Personal Communication Dr Lisi Tikoduadua Consultant Paediatrician, 2012.</td>
</tr>
<tr>
<td>Year</td>
<td>Events</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td></td>
</tr>
</tbody>
</table>
| 1997 | • Haemophilus influenzae type b introduced as part of the immunisation schedule  
• Measles SIA using monovalent measles vaccine  
• School leaving BCG ceased  
• 5 dose schedule for TT immunisation for primips commenced | Fiji Immunisation Policy 2004. |
| 2000 | • Western Pacific Region Declared Polio Free | WHO |
| 2003 | • Measles/Rubella vaccine introduced at 12 months of age (9 month monovalent measles vaccine ceased)  
• Measles/Rubella vaccine introduced at school entry introduced | Fiji Immunisation Policy 2004. |
| 2005 | • School Entry dose of BCG ceased  
• Monovalent rubella to class 6 ceased  
• DTP-hib introduced & monovalent Hib vaccine ceased  
• Immunisation coverage Survey | Fiji Immunisation Policy 2004. |
| 2006 | • MR campaign targeting ages 6 months to 5 years. |  
• DTP-Heb B-Hib vaccine replaced DTP-hib | Personal communication Kylie Jenkins FHSSP. |
| 2007 | • HPV Vaccine (quadravalent vaccine) offered to girls aged 9-12 years  
| 2010 | • Typhim Vi vaccine utilised to control selected outbreaks  
• Pandemic H1N1/09 vaccine offered to health care workers and those with pre-existing conditions | Post Cyclone Tomas Support to Typhoid Fever Control in Fiji March 2010.  
| 2012 | • Pneumococcal Conjugate Vaccine (10) and Rotavirus vaccine introduced  
• Birth dose OPV ceased  
|      | • Immunisation Coverage Survey |  |
8. Rationale

Vaccination has been demonstrated to be one of the most effective and cost-effective public health interventions. Worldwide, it has been estimated that immunisation programs prevent approximately 2.5 million deaths each year. The global eradication of smallpox in 1997, near elimination of poliomyelitis and global reduction in other vaccine-preventable diseases, are model examples of disease control through immunisation. In the year 2000, Fiji and the Western Pacific Region were declared Polio Free by WHO. Fiji also agreed to work towards measles elimination in 2012 and Hepatitis B Control as part of the Western Pacific Region’s commitment to support their citizens from vaccine preventable diseases.

Vaccination not only protects individuals, but also protects others in the community by increasing the overall level of immunity in the population and thus minimising the spread of infection. This concept is known as ‘herd immunity’. It is vital that healthcare professionals take every available opportunity to vaccinate children and pregnant women in accordance with this policy.

The purpose of The Immunisation Policy is to provide guidelines for health professionals on the safest and most effective use of vaccines currently available in the immunisation program in Fiji.

Immunisation schedules and rationale for vaccine introduction are all based upon disease burden and the WHO Position Paper recommendations.

9. Goals of the Immunisation Programme to Year 2013 to 2016

- To achieve and maintain >95% coverage for all vaccines routinely given for EPI;
- To ensure >95% of newborns are administered HBV in the first 24 hours of life;
- To reduce the national dropout rate (BCG-MR1) to <5%;
- To achieve and maintain >95% coverage for MR1 & MR2;
- To achieve and maintain >95% coverage for HPV doses 1, 2 and 3;
- To eliminate measles and maintain zero mortality of the disease;
- To maintain zero case reporting for neonatal tetanus, poliomyelitis, and diphtheria;
- To maintain adequate surveillance and reporting of VPD diseases through active and passive case finding;
- To ensure all cold chain equipment is available & fully functional at all points of immunisation delivery; including divisional hospitals, sub-divisional hospitals & other health facilities;
- To develop and implement national plans for safe injection practices;
- To ensure that there are adequate supplies of potent vaccines at all points of immunisation service delivery;
- To reduce vaccine wastage to < 5% for single dose vials;
- To monitor the implementation of the Multi-Dose Vial Policy;
- To undertake appropriate immunisation research as required;
- To monitor and evaluate immunisation policy and take action as necessary.

10. Objectives

- To protect every newborn, child, pregnant woman and those considered at risk from vaccine preventable diseases with the use of appropriate and potent vaccines.
- To protect the general population at large from vaccine preventable conditions as well.
- To further develop and support the cold chain at all levels of the health care system.
- To improve immunisation coverage of each specific antigen before the first birthday of a child.

11. Guiding Principles

This Policy re-affirms the ethics of respecting the rights of children to access an immunisation program that is free, offers potent vaccines. This Policy is also interrelated to the Public Health Act 2013, Child Health Policy and Strategy, Vaccine Storage Guidelines: Keeping it Cold 2013 to 2016.

In addition to that, the policy is directed to the following guiding principles:

- Supportive leadership
- Ensure equity and equality
- Effective communication
- Evidence informed
- Capacity building
- Effective partnerships
12. **Policy Statements**

Target populations for the EPI vaccines are children from birth to 18 months of age for primary immunisations. However any child under 5 years who has not received a vaccine shall be given that vaccine. School age children are targeted for measles- rubella vaccine and tetanus toxoid vaccine. Pregnant women are to be targeted for tetanus toxoid vaccine.

12.1 **Immunisation Schedules**

Fiji has four immunisation schedules:
- Schedule A: for infants under 18 months of age see table 2
- Schedule B: for school age children see table 4
- Schedule C: for un-immunised or partially immunised children see table 5
- Schedule D: for women of child bearing age see table 6-9

12.2 **Schedule A: For infants under 18 months old**

<table>
<thead>
<tr>
<th>AGE</th>
<th>VACCINE</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>SITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>BCG* (please see table 2 below for guidance on babies born to HIV positive mothers)</td>
<td>0.05mL</td>
<td>Intradermal</td>
<td>Mid upper left arm</td>
</tr>
<tr>
<td></td>
<td>HBV0 ^ (within 24 hours of birth)</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Anterolateral thigh</td>
</tr>
<tr>
<td>6 Weeks</td>
<td>DTP-Hep B-Hib 1</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Anterolateral thigh</td>
</tr>
<tr>
<td></td>
<td>Pneumococcal Vaccine 1</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Anterolateral thigh</td>
</tr>
<tr>
<td></td>
<td>Rotavirus Vaccine 1</td>
<td>1.5mL</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OPV 1</td>
<td>2 drops</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>10 Weeks</td>
<td>DTP-Hep B-Hib 2</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Anterolateral thigh</td>
</tr>
<tr>
<td></td>
<td>Pneumococcal Vaccine 2</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Anterolateral thigh</td>
</tr>
<tr>
<td></td>
<td>OPV 2</td>
<td>2 drops</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>14 Weeks</td>
<td>DTP-Hep B-Hib 3</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Anterolateral thigh</td>
</tr>
<tr>
<td></td>
<td>Pneumococcal Vaccine 3</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Anterolateral thigh</td>
</tr>
<tr>
<td></td>
<td>Rotavirus Vaccine 2</td>
<td>1.5mL</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OPV 3</td>
<td>2 drops</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>12 Months</td>
<td>MR 1</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
<tr>
<td>18 months</td>
<td>OPV 4</td>
<td>2 drops</td>
<td>Oral</td>
<td></td>
</tr>
</tbody>
</table>

^ Studies have shown that giving the hepatitis B vaccine within 24 hours of birth found that immunised infants born to mothers infected with hepatitis B were less likely to become infected with Hepatitis B.
Table 3: BCG Immunisation for infants born to mothers who are HIV Positive

<table>
<thead>
<tr>
<th>MATERNAL HIV STATUS</th>
<th>INFANT HIV INFECTION STATUS</th>
<th>BCG ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown or Negative</td>
<td>None</td>
<td>Not available</td>
</tr>
<tr>
<td>If known HIV Positive and/or Positive Mother has chosen to exclusively breastfeed</td>
<td>None</td>
<td>Not available</td>
</tr>
</tbody>
</table>

^ Includes those who refuse antenatal testing

^ Paediatric follow up necessary

12.3 Immunisation of Premature Infants & Neonates requiring Intensive Care

Infants born before 35 weeks gestation should be vaccinated according to their chronological age e.g. a 6 week old 30 week gestational age infant should be given the 6 week infant vaccines according to Schedule A. Some pre-term infants do not respond as well to Hepatitis B vaccine. A fourth dose of Hepatitis B vaccine at 12 months of age should be given to these children.

Neonates who require intensive care at birth should be immunised at the discretion of the treating paediatrician. However administration of the hepatitis B vaccine is still recommended within 24 hours of birth to reduce the likelihood of transmission of hepatitis B virus to the neonate during delivery.

12.4 Schedule B: Immunisation for School Age Children

It is recommended that children under 8 years old, or on school entry are immunised according to Schedule B, see table 4. Tetanus toxoid should be given at school entry and school leaving.

Table 4: Immunisation Schedule B for School Age Children

<table>
<thead>
<tr>
<th>AGE</th>
<th>VACCINE</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>SITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Entry</td>
<td>TT4</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
<tr>
<td></td>
<td>MR2</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
<tr>
<td>School Leaving</td>
<td>TT5</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
<tr>
<td>Class 8 (Girls only)</td>
<td>HPV 1</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
<tr>
<td></td>
<td>HPV 2 (1 month after 1st dose)</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
<tr>
<td></td>
<td>HPV 3 (6 months after 1st dose)</td>
<td>0.5mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
</tbody>
</table>

12.5 Schedule C: Un-immunised or Partially Immunised Children

Schedule C is aimed at unimmunised or partially immunised children. For those children who have received no immunisations, catch up vaccinations should be given as per Schedule C.

For partially immunised children, the child should receive the doses they have missed according to schedule C. There is no need to restart the immunisation schedule; the child should receive only the doses missed if they meet the age eligibility outlined below in table 5.
Table 5: Immunisation Schedule C for Unimmunised or Partially Immunised Children

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>AGE WHEN IDENTIFIED</th>
<th>NUMBER OF DOSES NEEDED IN TOTAL</th>
<th>DOSE ADMINISTRATION</th>
<th>INTERVAL BETWEEN DOSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>&lt;12 months</td>
<td>1</td>
<td>0.05mL Intradermal</td>
<td>n/a</td>
</tr>
<tr>
<td>DTP-Hep B-Hib</td>
<td>&lt;8 years</td>
<td>3</td>
<td>0.5mL Intramuscular</td>
<td>1 month</td>
</tr>
<tr>
<td>Pneumococcal Vaccine</td>
<td>&gt; 4 months to &lt; 6 months of age</td>
<td>3</td>
<td>0.5mL Intramuscular</td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>&gt; 7 months to &lt; 18 months of age</td>
<td>2</td>
<td>0.5mL Intramuscular</td>
<td>1 month</td>
</tr>
<tr>
<td></td>
<td>&gt; 19 months to &lt; 24 months of age</td>
<td>1</td>
<td>0.5mL Intramuscular</td>
<td>n/a</td>
</tr>
<tr>
<td>Rotavirus Vaccine</td>
<td>&lt; 8 months of age</td>
<td>2</td>
<td>1.5mL Oral</td>
<td>1 month</td>
</tr>
<tr>
<td>TT</td>
<td>&gt; 8 years</td>
<td>3</td>
<td>0.5mL Intramuscular</td>
<td>1 month</td>
</tr>
<tr>
<td>Hep B</td>
<td>&gt;8 years</td>
<td>3</td>
<td>0.5mL Intramuscular</td>
<td>1 month</td>
</tr>
<tr>
<td>MR</td>
<td>&gt;12 months &lt; school entry</td>
<td>1</td>
<td>0.5mL Intramuscular</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>&gt; School Entry</td>
<td>2</td>
<td>0.5mL Intramuscular</td>
<td>1 month</td>
</tr>
<tr>
<td>OPV</td>
<td>Any age</td>
<td>3</td>
<td>2 drops Oral</td>
<td>1 month</td>
</tr>
<tr>
<td>HPV</td>
<td>Class 8 only</td>
<td>3</td>
<td>0.5mL Intramuscular</td>
<td>0, 1 month, 6 months</td>
</tr>
</tbody>
</table>

12.6 Schedule D: Immunisation for Women of Childbearing Age 15-49 years old

The optimal programme to protect newborns against neonatal tetanus via immunisation of their mothers depends on the immunisation history among women. It is important to note that women may have received doses of tetanus toxoid in the past. Tetanus toxoid may have been given as part of a primary immunisation series in combination with DTP, DTP-Hib or DTP-Hep B-Hib vaccinations for children less than 12 months of age or as TT at school entry and school leaving.

By school leaving all girls should have received 5 doses of a tetanus toxoid containing vaccine. In addition they may have received doses of tetanus toxoid if they have endured an exposure prone wound. All primigravidas booking into ANC must have their TT immunisation status reviewed. Doses of TT given need to be documented on their Public Health Information System (PHIS) record and the pink TT card (which is given back to the woman).

12.6.1TT Immunisation Schedule for Women of Childbearing Age 15-49 years Who Have Received Doses of TT in the Past

Women who have been partially immunised with tetanus toxoid containing vaccine need to be caught up to receive a completed primary course of 5 doses of tetanus toxoid containing vaccine in total. The first dose should be given at the first ante natal visit. Spacing of the remaining doses of TT should be as indicated in tables 6 to 8. For Example: a woman who has received 2 doses of TT in childhood, the 3rd dose needs to be given at the first antenatal clinic, the 4th dose would be given 1 year after TT3 and the 5th dose should be given 1 year after TT4.

Women who were fully immunised with 5 doses of tetanus containing vaccine in their childhood should be given a booster dose of TT (TT6) on presentation to the antenatal clinic for their first pregnancy.

12.6.2 TT Immunisation for Women of Childbearing Age 15-49 years Who Have NOT Received Doses of TT in the Past

Women of childbearing age (15-49 years old) who have not been previously immunised with 5 doses of TT in their infancy or adolescence must be immunised according to the schedules in table 6-9. The first 3 doses of TT can be administered to a woman in her first pregnancy. The third dose, if need be, must be given during the first MCH clinic for the baby.
### Table 6: Immunisation Schedule D for Women of Childbearing Age 15-49 years old

<table>
<thead>
<tr>
<th>DOSE</th>
<th>WHEN TO GIVE</th>
<th>Level of PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT1</td>
<td>At first contact or as early as possible in pregnancy</td>
<td>None</td>
</tr>
<tr>
<td>TT2</td>
<td>At least 4 weeks after TT1</td>
<td>1-3 years</td>
</tr>
<tr>
<td>TT3</td>
<td>At least 6 months after TT2</td>
<td>5 years</td>
</tr>
<tr>
<td>TT4</td>
<td>At least 1 year after TT3 or during subsequent pregnancy</td>
<td>10 years</td>
</tr>
<tr>
<td>TT5</td>
<td>At least 1 year after TT4 or during subsequent pregnancy</td>
<td>All childbearing years</td>
</tr>
</tbody>
</table>

### Table 7: Second or Subsequent Pregnancy or women who have been previously immunised with 3 doses of TT vaccine

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>SITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT4</td>
<td>0.5 mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
<tr>
<td>TT5</td>
<td>0.5 mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
</tbody>
</table>

### Table 8: Women who have been previously immunised with 4 doses of TT vaccine

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>SITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT5</td>
<td>0.5 mL</td>
<td>Intramuscular</td>
<td>Upper arm</td>
</tr>
</tbody>
</table>

### Table 9: Women who have been previously immunised with 5 doses of TT vaccine

- Presentation to antenatal clinic with first pregnancy
  - TT6  0.5 mL Intramuscular Upper arm
- 20 years after last dose
  - TT7 and Subsequent doses

**Booster doses of TT are required every 20 years during child bearing years**

#### 12.7 Immunisation for HIV Infected babies and mothers

The decreased immune response to vaccines with increasing age for HIV-infected children emphasises the need for immunisation as early as possible in life for children born to HIV-infected women.

Individuals with HIV infection can receive all immunisations according to Schedules A-D except for BCG and the vaccine against yellow fever. As for any severely ill child, severely ill HIV-infected children should not be vaccinated.

Recommendations for vaccination with BCG for infants born to mothers who are HIV Positive are listed in Table 10.
Table 10: BCG Immunisation for infants born to mothers who are HIV Positive

<table>
<thead>
<tr>
<th>MATERNAL HIV STATUS</th>
<th>INFANT HIV INFECTION STATUS</th>
<th>BCG ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Symptoms or signs suggestive of HIV</td>
<td>Early HIV Testing Availability</td>
</tr>
<tr>
<td>Unknown or Negative</td>
<td>None</td>
<td>Not available</td>
</tr>
<tr>
<td>If known HIV Positive and/or Positive Mother has chosen to exclusively breastfeed</td>
<td>None</td>
<td>Not available</td>
</tr>
</tbody>
</table>

^^ Includes those who refuse antenatal testing

^^ Paediatric follow up necessary

12.8 Hepatitis B Immunisation Schedule for adults

All health workers in the Ministry of Health including the medical and nursing students of the Fiji School of Medicine and the Fiji School of Nursing, should be offered the standard schedule for Hepatitis B vaccination as they provide clinical services to the public at large. The schedule for the three adult doses is outlined in table 12.

<table>
<thead>
<tr>
<th>Hep B 1</th>
<th>Date the schedule commenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hep B 2</td>
<td>6 weeks after first dose</td>
</tr>
<tr>
<td>Hep B 3</td>
<td>14 weeks after second dose</td>
</tr>
</tbody>
</table>

The costs of providing the hepatitis B vaccine to these students must be paid by the respective teaching institutions. The Ministry of Health provides the Hep B vaccine for its health workers and staff. There is no need to test immunological status of the student before vaccination with hepatitis B vaccine.

13. Contraindications to Immunisation

There are few contraindications to immunisation. The risk of delaying an immunisation because of an intercurrent illness is that the child may not come back again and the immunisation opportunity is missed. Table 11 outlines true contraindications to immunisation, however;

- Health workers should use every opportunity to immunise eligible children.
- Children who are hospitalised should be immunised as soon as their general condition improves.
- Mild illnesses such as those not requiring hospitalisation (low grade fever, mild respiratory infections, diarrhoea) are NOT contraindications to immunisation.
- An allergy to egg is NOT a contraindication to vaccination with MR vaccine.
Table 12: True Contraindications to Immunisation

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>TRUE CONTRAINDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>See Table 9 for precautions for infants born to HIV positive mothers</td>
</tr>
<tr>
<td>DTP-Hep B- Hib</td>
<td>Anaphylactic reaction (severe allergy) to previous dose</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Anaphylactic reaction to previous dose</td>
</tr>
<tr>
<td>MR</td>
<td>Severe or anaphylactic reaction to previous dose; pregnancy; congenital or acquired immune disorders (not HIV infection)</td>
</tr>
<tr>
<td>OPV</td>
<td>Anaphylactic reaction to previous dose</td>
</tr>
<tr>
<td>Tetanus toxoid</td>
<td>Anaphylactic reaction to previous dose</td>
</tr>
<tr>
<td>Pneumococcal vaccine</td>
<td>Hypersensitivity to any component of the vaccine</td>
</tr>
<tr>
<td>Rotavirus Vaccine</td>
<td>Hypersensitivity to any component of the vaccine, infants with a history of either of the following: chronic gastrointestinal disease including any uncorrected congenital malformation (such as Meckel’s diverticulum) of the gastrointestinal tract, intussusception, severe combined immunodeficiency (SCID) disorder</td>
</tr>
<tr>
<td>HPV Vaccine</td>
<td>Hypersensitivity to any component of the vaccine</td>
</tr>
</tbody>
</table>

Live vaccines (OPV, Rotavirus Vaccine, MR and BCG) should NOT be administered to the following individuals:

- Patients receiving high-dose oral or injectable corticosteroids e.g. prednisolone 2mg/kg/day for more than one week or 1mg/kg/day for more than one month or other immunosuppressive treatment such as chemotherapy.
- Live vaccines can be given after 3 months following the cessation corticosteroid or chemotherapy of treatment.
- Those infants with malignancies including those who have received chemotherapy in the last 6 months;
- Those infants who have received organ or bone marrow transplants recently. Inactivated vaccine can be given according to the normal schedule however the immunological response may be less.

14. Administration of Vaccines

14.1 Administration of two or more vaccines on the same day

It is recommended that the scheduled vaccines be given at the same time on the same day at 6 weeks of age. If more than one injectable vaccine is due on the same day they should be given in different limbs (where possible) and using separate auto-disable syringes. If catch up vaccinations are required, as many antigens as are required should be given in the catch up visit. All EPI antigens are safe and effective when administered at the same visit. Giving doses of a vaccine less than 4 weeks apart, may lessen the antibody response and should be avoided.

14.2 Drawing up of Vaccines

For vaccines that are either drawn up through a rubber bung and reconstituted vials, a new needle should be used for administration. Small air bubbles do not need to be expelled through the clean needle. A needle or syringe that has been used to inject a person must never be used to draw up vaccine from a vial because of the risk of cross-contamination.

Any vaccination using less than the standard dose, or a nonstandard route of administration should not be accounted as a valid vaccination, and the person should be revaccinated according to age using Schedule C.

Mixing vaccines with other vaccines, drugs, or chemicals, is not recommended. Different vaccines must not be mixed in the same syringe unless recommended by the vaccine manufacturer.
14.3 Route of Administration

- Almost all vaccines are given either by intramuscular (IM). The major exception is OPV and rotavirus vaccines are given orally, and BCG, which is given by intradermal injection.
- Injections must never be given in the buttocks.
- The anterolateral thigh is the preferred site for vaccination in infants under 12 months of age see figure 1. The deltoid (upper arm) region is the preferred site for vaccination in older children who have commenced walking see figure 2.
- If the skin is visibly clean there is no need to swab the site with alcohol before vaccination. However if the site is visibly unclean, swab the site.
- For vaccines injected into the anterolateral thigh the junction of the upper and middle thirds of the vastus lateralis, which is the bulkiest part should be used. The needle should be angled at 45 to 60° to the skin, with the angle pointing down towards the knee. This ensures that the needle will pierce the skin a finger width above the level of the upper and middle thirds of the muscle.
- For children over 12 months the best site is the middle of the deltoid muscle, which is halfway between the shoulder tip and the muscle insertion at the middle of the humerus. The needle should be introduced at a 45 to 60° angle pointing towards the shoulder. If the lower part of the deltoid is injected, there is a risk of radial nerve damage as the nerve winds forward and emerges from the triceps.
- For intradermal injection of BCG vaccines, use a 26-27 gauge needle 10 mm in length. Intradermal injection technique requires special training.

15. Missed Opportunities

A missed opportunity for immunisation occurs when a child comes to a health facility or hospital and does not receive any or all of the vaccine doses for which he or she is eligible at that point in time. The following are the most important reasons for missed opportunities:

- The failure to administer simultaneously all vaccines for which a child was eligible;
- False contraindications to immunisation;
- Health worker practices including not opening a multi-dose vial for a small number of persons to avoid vaccine wastage. It is cost effective to open a multi dose vial for a single child and this should be done;
- Logistical problems such as vaccine shortage, poor clinic organization and inefficient clinic scheduling;
- Lack of availability of vaccines in hospitals;
- Health worker out of the health facility for other engagements and mother & child arrives.

The immunisation status of all children in the target age group should be screened routinely and immunisation should be provided at every opportunity. Health workers must know what are true and false contraindications to immunisation.
16. Consent for Immunisation
Informed verbal or written consent from parents, guardians and baby carers must be obtained first by the health workers before any immunisation is administered to children. Adults must also give their consent as well before they are given the vaccines.

17. Vaccination for Travellers Overseas
Any person (s) who requires vaccination against other vaccine preventable diseases for travelling purposes such as yellow fever, must bear the necessary costs accordingly.

18. Immunisation by General Practitioners (GPs)
The GPs may administer immunisation to children in accordance with the Fiji Immunisation Schedule at the choice of their parents. GPs may obtain the appropriate vaccines from designated health centres within their vicinity upon request to the medical officer in charge. They must produce a vaccine carrier to maintain the cold chain system upon collection of vaccines and submit a detailed immunisation report to the medical officer in charge to account for the utilization of vaccines for the PHIS, before a subsequent new request is supplied. All GPs must have a designated vaccine refrigerator in their facility if they store vaccines. The GPs must not charge the parents for the cost of the vaccines.

19. Reporting
Following each infant immunisation health workers should sign and date each immunisation in the MCH Register in the clinics and the Child Health Record. School immunisations should be recorded on the School Health Record at the school and a record sent home to their parents. All women should be given an Antenatal Vaccination card in which records of their current and past immunisations will be recorded. Date, batch number and place of immunisation must be recorded.

A record of each immunisation given should be recorded in the register at the clinic or during outreach session, school health team register, or hospital register. The number of doses administered for each vaccine should be collated and reported in the Public Health Information System (PHIS) see annex 5 every month by each zone nurse/district nurse/health facility/school team, whichever appropriate, and sent to their subdivisonal health sisters in the nineteen (19) subdivisions, and to the four (4) divisional health sisters in the 3 health service divisions for collation and calculation of immunisation coverage rates and other EPI logistical requirements.

This information is also forwarded to the statistics and Family Health Unit in Head office on the PHIS forms so that the immunisation coverage rates can be calculated and verified at various levels. It is the responsibility of the Sub divisional and Divisional Health Sisters and the EPI Program Manager to ensure that timely immunisation reporting and analysis is done in the three health service divisions.

A National Immunisation Survey should be conducted every 5 years, among other things; to verify and confirm the routine immunisation reporting system is the true record of the immunisation coverage. A national EPI meeting must be held annually for EPI managers to discuss EPI coverage and other related issues.

20. Legislation
The administration of immunisation by nurses and doctors are covered under the Public Health Act. The detailed processes of the actual immunisation procedures by the nurses are reflected in the Scope of Practice of the Nurses and Midwives Board. Vaccine Management and other logistical arrangements are covered under the Pharmacy and the Illicit Drug Acts.

21. Procurement of Vaccines
All vaccines procurement should meet WHO standards. Procurement of vaccines and related supplies should be done considering the bundled supplying method. This should be the responsibility of the EPI Programme Manager and the Chief Pharmacist overseen by the Deputy Secretary Public Health. The vaccine requirements and projections should be estimated annually and procured from pre-qualified UNICEF suppliers.

The National Medicines and Therapeutic Committee and the Drugs and Poisons Board should approve registration of new vaccines for use in Fiji, after review of registration from other countries with strict regulatory requirements such as the Therapeutics Good Administration of Australia or the New Zealand equivalent.
• All vaccines must be kept between +2 to +8 °C at all health facilities.

• The procurement of vaccines is fully funded by the Government of Fiji with support from the Vaccine Independent Initiative (VII) mechanism through UNICEF.

• Vaccines should be preserved at national and divisional level, according to the WHO and manufacturer guidelines. Vaccines should be preserved for a maximum of 6 months at national level, and one month at sub divisional levels.

• The procurement, storage and distribution of vaccines throughout the nation are the responsibility of the Chief Pharmacist at FPBS and the EPI co-ordinator, in conjunction with the Divisional and Sub-Divisional Health Sisters as well as the Principal Pharmacists in the four (4) health service divisions.

• Management (procurement, utilisation and maintenance) of cold chain equipment will be implemented by the four (4) Health Service Divisions and facilitated by the FPBS and the Family Health Unit of the Public Health Division at Head Office.

22. Vaccine Wastage Reduction

The priority of the immunisation programme is to reach every child and to reduce missed opportunities, but vaccine wastage can be reduced even within the framework of this policy. Vaccine wastage can be reduced by:

• Proper estimates and projections of actual annual vaccine needs at all points of vaccine use;

• Careful planning and ordering of vaccines at field level;

• Proper storage, handling and distribution of vaccines from national, divisional and subdivisional levels including an effective cold chain system;

• Correct reconstitution and correct administration of vaccines;

• Effective comprehensive Public Health Program planning and implementation.

22.1 Multi-Dose Vial Policy

Specific vaccine vials of BCG, MR and other vaccines except the ones listed below are to be discarded at the end of immunisation session or after 6 hours according to WHO guidelines.

The Multi Dose Vial Policy applies only to multi dose vials of OPV, TT, and Hepatitis B vaccines that:

• Meet WHO requirements for potency and temperature stability;

• Are packaged according to ISO standards 2; and

• Contain an appropriate concentration of preservative, such as thiomersal (injectable vaccines only).

Multi-dose vials of OPV, TT, and Hepatitis B vaccines from which, one or more doses of vaccine have been removed during an immunisation session may be used in subsequent immunisation sessions for up to a maximum of 4 weeks, provided that all of the following conditions are met:

• The expiry date has not passed;

• The date and time vial was opened is recorded on the vial;

• The vaccines are stored under appropriate cold chain conditions;

• The vaccine vial septum has not been submerged in water;

• Aseptic technique has been used to withdraw all doses;

• The vaccine vial monitor (VVM), if attached, has not reached the discard point.

Vials opened for outreach or mobile campaigns are at a higher risk of contamination and heat exposure and should be discarded at the end of the outreach session.

22.2 Reconstituted Vaccines

Vaccines that must be reconstituted (BCG, MR, some formulations of DTP-Hep B-Hib) must be discarded at the end of each immunisation session or at the end of six hours, whichever comes first.

The EPI Programme Manager will specify each year which vaccines can be saved in certified programmes in case the formulation of vaccines change. The Divisional Medical Officers of the 3 Health Service Divisions should
certify which health facilities can save vaccine according to whether the staff can demonstrate proficiency in the use of sterile injection equipment, vaccine storage, transport, vaccine use & administration and wastage.

23. Human Resources

Personnel in all health facilities should attain national levels and standards of updated EPI information and knowledge. Communication of the new policy and every change to immunisation or cold chain management should be communicated to the health workers, EPI managers, DMOs, Medical Superintendents, Fiji Pharmaceutical and Biomedical Services staff, FSN, and FSMed. EPI In-service training for all staff should be conducted at least once a year at national, divisional and sub divisional levels.

24. Co-ordination Mechanism

An Interagency Co-ordination Committee (ICC) at the national level or equivalent committee should meet once every three months and discuss EPI related issues. An EPI task force could be formed and should meet monthly at MoH central office. This should be a subcommittee of the National Child Health Committee chaired by the Deputy Secretary Public Health.

25. Partnerships

The MoH’s main responsibilities are:

- To provide direction and protection on policies, develop strategies, guidelines, and setting priorities on EPI issues;
- To facilitate and promote EPI Programme implementation, monitoring, supervision and evaluation of the EPI program;
- To provide health facilities and appropriate places to ensure provision of quality immunisation services.
- To provide leadership, coordination and communication to all stakeholders;
- To ensure other government ministries such as the Ministry of Education are to support the EPI programs in particular the immunisation in schools.

UN responsibilities are:

- Provision of technical support and assistance in terms of capacity building, supplies, logistics, operational and procurement.

NGOs responsibilities are:

- Programme implementation under the direction of the MoH, provision of technical/financial support and contribution in supervision, monitoring and evaluation of EPI in an integrated manner. The NGOs will work under the policy and guidance of MoH and will comply with the regulations of the government.

Community responsibilities are:

- Provision of local resources in the form of EPI volunteers or Community health Workers to facilitate the implementation of EPI Programs at community level.

26. Advocacy and Communication

The MoH and political leaders should provide active demonstration of support and promotion of routine immunisations and services. There are four audiences to address:

- Potential partners: aid organizations, government agencies, non-government organizations, researchers, and others who have a stake in immunisation;
- Policy and decision makers who influence immunisation;
- The general public; and the
- Mass media.

All EPI communication activities should be developed according to a comprehensive EPI communication package and strategy.

27. Surveillance and Data Management

Surveillance for vaccine preventable diseases will occur for AFP (marker for polio), diphtheria, fever and rash (marker for measles), pertussis, polio, rubella (including congenital rubella syndrome), and tetanus (including neonatal tetanus) see annex 6. At the national level, clear surveillance standards must be established for maximum efficiency and so that data are comparable throughout the country. These standards include:

- a case definition
- the type of surveillance to be conducted
- the data elements to be collected
• the minimum analyses and routine reports to be created
• the use of data for making decisions

For surveillance to be operational, the following needs to be carefully defined:
• the process of surveillance
• the tasks at each level
• the data/specimen flow
• the logistics, including staff issues
• designation of staff
• staff training
• appropriate tool distribution (e.g. means of communication, transportation, specimen kits)

Staff at all levels should be trained and encouraged to analyse and use their data. Data that can be more efficiently collected from other sources (e.g. survey) should not be included in a surveillance system.

Feedback of information to the Divisional Medical Officers in the three health service divisions should occur quarterly and annually.

The Pacific Public Health Surveillance network (PPHSN) and information should be utilised to provide additional support and information to the surveillance system in Fiji through the Director Public Health and the Chief Medical Officer Public Health Laboratory at Mataika House. This network will also provide technical support and assistance in terms of disease outbreaks preparations and responses with appropriate team’s mobilizations through the Secretariat of Pacific Community (SPC) and WHO.

28. Responsibilities

28.1 National Responsibilities

The existence of policies, case definitions, designated responsible officials with appropriate status, clearly established reporting channels, monitoring of performance indicators (e.g. completeness and timeliness of reporting), availability of trained staff, good data management including routine data analysis, reports and feedback, and evidence that surveillance data are used dynamically to guide policy/strategy development.

28.2 Divisional Responsibilities

Presence of guidelines, availability of trained staff, monitoring of performance indicators from more peripheral units, good data management (either on paper or by computer), analysis, useful display of data (line lists, tables, graphs, maps), and evidence that data are used for monitoring performance and taking action.

28.3 Service Delivery Responsibilities at Sub divisional Level

Vaccine orders should be sent from Sub Divisional level to FPBS no later than the 15 Day of each month. Nursing Stations and Health Centres should have their orders at Sub Divisional level no later than the 7 the day of each month. See Annex 7 for vaccine order form & Monthly Vaccination Report. This will ensure a continuous supply of vaccines.

Awareness of surveillance and reporting requirements, national case definitions, designation of responsible persons for reporting, established mechanisms for efficient recording and reporting, availability of trained staff, availability of reporting forms, copies of completed forms in an easily accessible filing system.

28.4 Data Management

There should be 100% reporting for all VPD surveillance from all health facilities in quadruplicate to the Sub- Divisional Medical Officer, Divisional Medical Officers, and National Epidemiologist on the Notifiable Diseases Form. This should be forwarded to the National Advisor Family Health and Deputy Secretary Public Health. AFP, NT, AFR, and CRS should be reported jointly from the hospitals to the National Epidemiologist on a monthly basis on the Monthly EPI Surveillance Form. AFP, NT, fever/rash cases should be reported to WHO on a monthly basis.

Zero reporting should be practiced for AFP, NT, AFR, CRS, polio, and pertussis. It is the responsibility of the RH statistician to ensure that reporting is 100%. Active follow up of health facilities not reporting should be undertaken. Collated feedback from the epidemiologist to the Sub-Divisional Medical Officer and Divisional Medical Officers should occur quarterly. An annual report on all VPDs should be produced and distributed.

Respective officers need to ensure that reporting is completed and submitted in a timely manner to avoid delays in country reporting, though to note that if reports
are not submitted at the appropriate time and this has occurred consecutively for 2 reports, the responsible officer will undergo disciplinary measures as thought appropriate by the Disciplinary committee.

28.5 Outbreak Response

Outbreaks of VPDs should be investigated to understand the epidemiology, determine why outbreaks have occurred (vaccine failures, failure to immunise, accumulation of susceptible, waning immunity, new strain) and ensure proper case management. The reporting and investigation system should activate the Communicable Disease Outbreak Response Teams in the divisions and subdivisions as well at national level in accordance with the Disease Outbreak Response Manual and include:

- Immediate reporting of case-based data of probable or confirmed cases from the clinic to the Sub-Divisional Medical officer, Divisional Medical Officer, Epidemiologist, the National Advisor Family Health and Deputy Secretary Public Health and also recorded on the PHIS and Notifiable Disease form as appropriate.

- Suspected cases within the WHO/SPC clinical case definitions, should be investigated and confirmed by the Sub-Divisional Medical Officer should be subsequently reported.

- Hospitals and health centres should act as sentinel sites for target diseases to provide a more complete picture of morbidity & check on the quality of routinely reported data.

- Suspected outbreaks must be reported to the Epidemiologist, the National EPI Programme Manager, National Advisor Family Health and the Deputy Secretary Public Health at MOH head office who shall inform the PS of Health as soon as the disease is verified.

- Any deaths from suspected cases must be investigated by the Sub-divisional Medical Officer and the DMO, and reported to the Epidemiologist, the EPI Programme Manager, Deputy Secretary Public Health and the Statistics Unit for further necessary action as soon as possible.

- Control and investigation of outbreaks should be organised immediately and managed at the sub-divisional and divisional level with support from the national level.

- In the event of an outbreak in school, any child who is not vaccinated should be either immunised immediately or excluded from school until the outbreak is over.

During the outbreak of a vaccine preventable disease the information included be collected and submitted on specific case reporting forms.

29. Supervision and Monitoring

National, divisional and subdivisional, EPI Programme Managers are responsible for the supervision, monitoring and evaluating EPI activities. National staff will provide supportive supervisory field visits at least biannually. Scheduled supportive supervisory activities by divisional health authorities will be conducted at least quarterly and the head of the health facility on a weekly basis. For all EPI supervisory visits standard EPI checklist should be used.

The Immunisation Organizational Structure illustrates the leadership and flow of services including reporting channels. The Public Health facilities include all the Health Facilities in Fiji which include the Divisional Hospitals, Sub-Divisional Hospitals, Health Centres, Nursing Stations and Private Practitioners. The private Health Facilities include all private Hospitals and Clinics in the country that provide immunisation services.

The flow chart shows both the Service and the Health Information reporting structure. Figure 3 shows the Immunisation program Organisational Structure.
Figure 3: Immunisation Program Organisational Structure

Health information flow

Service/Reporting flow
30. Safe Injection and Disposal

Unsafe injections can result in the transmission of blood-borne pathogens from patient to patient, patient to health worker and, more rarely health worker to patient. The community at large is also at risk when injection equipment and consumables are used and then not safely disposed of. Auto-disable syringes must be used for all EPI related injections whenever possible. Standard disposable syringes should no longer be used for immunisation. The standards of procedure in safe injection should be followed as reflected in the Infection Control Policy of the Ministry of Health.

- The auto-disable syringe presents the lowest risk of person-to-person transmission of blood borne pathogens (such as Hepatitis B or HIV) because it cannot be reused. The auto-disable syringe is the equipment of choice for administering vaccines, both in routine immunisation and mass campaigns.

- “Safety boxes”, puncture-proof containers - for the collection and disposal of used disposable and auto-disable syringes, needles and other injection materials - reduce the risk posed to health staff and the general public by contaminated needles and syringes.

- Where possible EPI waste should be transported to the nearest incinerator at a Subdivisional or Divisional hospitals. Incineration completely destroys needles and syringes by burning at temperatures above 800°C. The high temperatures kill micro-organisms and reduce the volume of waste to a minimum.

30.1 The risk of injuries and infections can be reduced when handling injection equipment as follows:

- Not recapping used needles;
- Keeping a container as close as possible to the place where you give injections and disposing of used needles in puncture-proof containers;
- Immediately and thoroughly wash hands and other skin surfaces that have been contaminated with blood or other body fluids.
- Not using disposable syringes and needles from damaged or punctured sterile packs or which have passed the expiry date.
- When only three quarters full, safety boxes should be sealed and discarded to prevent needle stick injuries.

- Containers should be collected for incineration or other forms of destruction (burn and bury) as soon as possible at the end of the immunisation session.
- Contaminated needles should not be transferred from container to container.

Where incinerators are not available, open fire burning should be undertaken. Burning refers to the combustion of injection equipment at lower temperatures that may or may not completely destroy them. Open burning of contaminated sharps in a pit is the least preferred, most toxic option. Open burning is not recommended, because it scatters waste.

31. Adverse Events Following Immunisation

An AEFI surveillance system will be established for reporting AEFI at all levels. Investigation and follow up actions must be done according to the Standard Guidelines (Annex 8). All AEFI must be reported using the AEFI investigation form to the National EPI Coordinator at FPBS and NAFH who will then forward this information to the National Medicines and Therapeutics Committee (NMTC) for further assessment and follow up.

32. Coverage Survey and Evaluation

A national immunisation coverage survey should be conducted every 5 years as a means of evaluating coverage statistics. Safe injection practices should be monitored. Vaccine wastage figures should be calculated.

The Immunisation Policy should be reviewed on a regular basis. An EPI meeting should be conducted biannually to evaluate the implementation of EPI annual plan of action, review coverage, surveillance, supervisory visit reports and other EPI related issues. Results should be acted upon. An annual report of VPD disease surveillance should be produced.

33. Introduction of New Vaccines

The decision to add a new vaccine is often influenced by social values, perceptions, and political concerns and is not just a technical one).

A rational decision on the introduction of a new vaccine requires information on:
• Disease burden
• Vaccine safety and effectiveness
• Vaccine cost
• Net impact

This decision on the introduction of new vaccines should be recommended by the ICC including a representative from donor countries. Technical assistance could be requested from WHO/UNICEF. The final decision rests with the National Health Executive Committee of the MOH.

34. Immunisation and Vaccine Preventable Diseases Research

The Ministry of Health acknowledges that research is critical in provisioning evidence based decision making and in the implementation of evidence based interventions in the provision of immunisation services in the country.

The Ministry of Health mandates and supports research relevant to immunisation and vaccine preventable diseases in adherence to research protocols and processes of the NHRC and the FNRERC.

All such research conducted in the Republic of Fiji must have the Ministry of Health or a local health institution as a counterpart and must ensure that a written and presented report is made available to the Permanent Secretary for Health and the Minister for Health within 6 months of the completion of the research.

All such research conducted by external researchers from outside the Ministry of Health, or by foreign researchers, must ensure the up skilling of local counterparts for the relevant research capacity.

All data requests for the purpose of immunisation and vaccine preventable disease related research are to be within the processes mandated by the Health Information Policy of 2011.

All data and research must inform best practice, better management, evidence based strategies, priorities and evidence based decisions.

The Ministry of Health will support all immunisation and vaccine preventable disease related research that addresses the needs, gaps, and opportunities in the Republic of Fiji, and support the development of evidence to inform policy regarding immunisation services.

35. Sustainability

EPI is an essential public health programme because the MoH is the main implementing agency and the main focus of the project is capacity building of the government staff at all levels. Through EPI the divisional health services have the capacity to store and manage vaccines and cold chain supplies as well as report on performance and outcomes of the EPI. Simultaneously through UNICEF and WHO regular programmes, EPI is being supported both financially and technically. The strategies and lessons learned from EPI can be applied to future health interventions.

Experience from other countries with successful EPI shows that this programme can be used as the foundation for integrating health information, health worker training, distribution and logistics particularly for essential drugs, maternal health services and control of communicable diseases. Integration with other services is a necessary ingredient for sustaining the EPI program. Overall EPI is one of the most cost-effective of all strategies available to the health sector. Government is paying the recurrent costs related to vaccine and cold chain equipment and salary support for government workers.

36. Vaccine Cold Chain

Vaccines are delicate biological substances that can become less effective or destroyed if they are frozen, allowed to get too hot and/or exposed to direct sunlight or fluorescent light. The outcome following exposure to any or all of these conditions is dependent on the vaccine itself. The National Vaccine Storage Guidelines: Keeping it Cold defines the cold chain as the system of transporting and storing vaccines within the safe temperature range of +2°C and +8°C. The cold chain begins from the time the vaccine is manufactured, moves through to the Fiji Pharmaceutical & Biomedical Services, Health Centres and Nursing Stations and ends when the vaccine is administered.

The success of the system involves three key elements: people, processes and equipment. The cold chain system in Fiji has been revitalised with support from MoH and donor agencies. The MoH is responsible for ensuring cold chain equipment is maintained and available for storage of vaccines at all levels in line with the Vaccine Storage Guidelines: Keeping it Cold 2013-2016.
37. EPI Curriculum’s in Nursing and Medical Schools
The revised EPI Curriculum’s in the TISI Nursing School and the Fiji National University (covers both Medical and Nursing) and the University of Fiji should encompass the EPI issues and framework covered in the Fiji Immunisation Policy 2013. The scope of the EPI curriculums will synchronize into this policy and the necessary modifications to be made if and when the policy is reviewed.

38. Introduction of New Vaccines
Many new vaccines are available now and even more will be available in years to come. They include vaccines for diseases not previously immunised against, improvements to existing vaccines, and combination vaccines to reduce the number of injections required at each visit. In general combination vaccines provide an ideal way to add a new antigen to the immunisation schedule as they are more convenient for parents and health workers, reduce the potential for unsafe injections, and reduce the discomfort for persons receiving the vaccine, and reduce the burden on the programme. However combination vaccines are more expensive.

38.1 Many considerations need to be discussed before a new vaccine is introduced and included but are not to the following;

Is the disease a public health problem?
- Can routine surveillance data, morbidity, and/or mortality statistics provide adequate information on disease burden?
- If not, can systems be introduced/enhanced to estimate disease burden from routine data?
- Are there special studies available on disease burden?
- If not, can such studies be conducted?
- Are disease burden estimates from similar countries available and applicable?
- If not, can such studies be conducted?
- Are disease burden studies from similar countries available and applicable?
- Is the immunisation the best control strategy for this disease?

- If an alternative control strategy is more cost-effective, a new vaccine should not be considered.
- Are there any other ways to control the disease?
- If so, how do they compare in terms of:
  - Effectiveness
  - Safety
  - Costs
  - Practicality/feasibility
  - Time effects

38.2 Is the immunisation programme working well enough to add a new vaccine?
- Coverage (the key indicator of programme performance)
- Vaccine supply (procurement and quality of vaccine)
- Vaccine stock management (including wastage)
- Cold chain
- Safe injection practices
- Immunisation delivery
- Surveillance (for diseases, immunisation coverage, and AEFI)
- Communication

38.3 What will be the net impact of the vaccine?
- Disease burden
- Vaccine effectiveness
- Vaccine safety
- Impact on the immunisation programme
- Other possible impacts

38.4 What additional requirements will be needed for the introduction of the new vaccine?
- Vaccine
- Transport
- Storage
- Immunisation materials (records, worker time, injection supplies and disposal of materials)
- Training of health workers
38.5 Social marketing

• Any new resources

38.6 Is the vaccine a good investment?

Economic analysis aids decision making by comparing different interventions and estimates the cost per health outcome. The net cost is the total cost of additional resources for introducing the new vaccine minus any savings in treatment and other costs from disease prevented. The net health impact is the disease, disability and death avoided minus any adverse events from the vaccine.

• What is the cost per health outcome?
• How does this cost per outcome compare with alternative investments?

38.7 How will the vaccine be funded?

Even for a cost saving vaccine new funds will be needed. Showing that the vaccine is highly cost effective helps to obtain loans, funding from government or donors, or a combination of all.

• What is the total cost for introducing the new vaccine?
• Where the funds can be found to cover this cost (short and long term)?

38.8 How will the addition of the new vaccine be implemented?

• Are any other changes planned to the immunisation schedule?
• If yes, how to co-ordinate with the new vaccine introduction?
• Will the implementation be phased, piloted or introduced nationally?
• If the introduction is being piloted, are the questions that the pilot is to answer clearly formulated?
• How will the addition be evaluated (impact on disease burden and adverse events)?

39. Fiji National Immunisation Programme Plan of Action

39.1 Implementation

• The programme shall continue to be implemented as an integral function of the Public Health programme as reflected in the Corporate Plan and the PH Business Plan
• The National Advisor Family Health and National EPI Programme Manager are responsible for implementation of activities and programme.
• All health workers including the students at the Fiji National University, TSI, and the University of Fiji should be informed on the revised Immunisation policy.
• The Ministry of Health Immunisation policy should be followed by all health workers.
• Financial and technical support should be provided to Continuous Medical Education of health workers in immunisation.
• Measles elimination strategy should be implemented in all divisions.
• All divisional and sub-divisional hospitals and health facilities should have an adequate supply of potent vaccines and EPI consumables, and fully functional cold chain equipment.
• All injections given should be safe.
• Zero reporting should be practiced for AFP, NT, fever/rash, CRS, polio, and pertussis.
• Plans be prepared to ensure that an effective surveillance system for EPI vaccine needs are met with high quality vaccine and have established effective and sustainable cold chain systems for safe storage and transport of vaccines.
• An EPI maintenance team for each division should be trained and available.
• The planning, implementation and evaluation of the EPI shall be co-ordinated by the office of the Family Health Unit by the EPI Programme Manager with the Director of Public Health, the Chief Pharmacist, and epidemiologist, and reported on to the Permanent Secretary for Health.
- Divisional EPI programme activities shall be co-ordinated by the Divisional EPI Programme Managers/CMO CH.
- National Immunisation Surveys should be conducted every 3 – 4 years

Key Indicators
- Objectives, strategies, key indicators, and responsibilities are listed in Table 14.

### 40. Key indicators for Fiji National Immunisation Services

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>STRATEGY</th>
<th>OUTCOME INDICATOR</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
</table>
| IMMUNISATION SERVICE DELIVERY | • All infants be fully immunised by the age of one year according to Immunisation schedule A  
• All infants who have not been fully immunised by the age of one year must complete the vaccination schedule as soon as possible  
• All children with no record or history of full immunisation be immunised according to schedule C  
• All children at school entry be immunised according to vaccination schedule B  
• All primary school age children be given MR vaccine in 2004  
• All immunisation defaulters should be routinely identified and followed through an outreach programme | Annual coverage for each vaccine  
National dropout rate (BCG - MR1)  
HBV1 coverage rate within 24 hours of birth | EPI Co-ordinator |
| Achieve 100% reporting | • All vaccinations must be recorded in each Child Health Record kept by the mother plus the clinic immunisation register  
• Records of immunisation coverage should be kept at all stations and preferably displayed in graphs and charts for programme information  
• Infant immunisation record cards should be kept by mothers and mothers should be informed of the importance of keeping these records through the primary, secondary, and tertiary education of their children  
• All mothers should have a record card for tetanus toxoid vaccinations  
• Immunisation records of school children must be kept at the school  
• All doses of vaccine administered in each health facility and hospital be recorded and submitted to central office in the PHIS  
• All health facilities to submit their PHIS data in a timely manner  
• The Divisional Health Office should request reports from health facilities that do not submit their monthly reports | Reporting rate |
<table>
<thead>
<tr>
<th>To have a National Immunisation Plan</th>
<th>• Develop and implement plan</th>
<th>Existence of national plan for immunisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement plan for AEFI reporting</td>
<td>• Develop and implement AEFI plan</td>
<td>System for reporting AEFI Number of AEFIs reported and classified</td>
</tr>
<tr>
<td></td>
<td>• All reported AEFIs should be investigated and classified</td>
<td></td>
</tr>
</tbody>
</table>

**VPD DISEASE SURVEILLANCE**

<table>
<thead>
<tr>
<th>To maintain adequate surveillance of all VPDs</th>
<th>• Update national surveillance system for VPD with an emphasis on AFP, febrile rash illnesses (measles and rubella), NT, pertussis, diphtheria, polio, and CRS</th>
<th>VPD incidence</th>
<th>Epidemiologist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Develop a mechanism for the dissemination of VPD Surveillance outline</td>
<td></td>
<td>Non-polio AFP rate</td>
</tr>
<tr>
<td></td>
<td>• Develop and print EPI Surveillance and outbreak response manuals</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Develop a computerized EPI/ health information system</td>
<td></td>
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<tr>
<td></td>
<td>• Print and distribute copies of Fever/rash, AFP, NT, CRS, case investigation forms</td>
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<td></td>
<td>• Monthly immunisation coverage must be accurately compiled, reported and analysed on a regular basis</td>
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<tr>
<td></td>
<td>• Mortality due to or associated with target diseases must be recorded and reported at subdivisions, divisional, and national levels</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Measles elimination strategies implemented in all divisions.</th>
<th>• Achieve &gt; 95% coverage for MR1 and MR2</th>
<th>% of febrile rash outbreaks investigated</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Ensure all cases of febrile rash illness are reported and investigated as per guidelines</td>
<td>% of measles cases with information on age and vaccination status</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Develop guidelines on measles outbreak response</td>
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</tbody>
</table>

| Ensure 100% reporting rate                                 | • Completed monthly forms should be sent to the EPI co-ordinator                                                 | Reporting rate                         | |
|                                                            | • Statistics department will collate data and follow up all non-reporting health facilities via the District Health office |                                         |
## LOGISTICS

| All health facilities have functioning cold chain equipment | • Development of long term plans to re-equip and rebuild the cold chain in Fiji, with standardization of cold chain equipment  
• Remote areas without electricity and difficult/infrequent gas supply have appropriate cold chain equipment (e.g. solar power)  
• Train a maintenance team for each division  
• Establish and implement regular maintenance plan for equipment  
• Establish annual inventory of all EPI equipment | % of health facilities with functioning vaccine fridges | EPI co-ordinator with Chief Pharmacist |
|---|---|---|---|
| Supplies, equipment, & consumables are available in the place & amount required | • Establishment of vaccine distribution centres to maximize access of the population to current vaccine supplies  
• Provision of transport to deliver vaccines in a timely manner, collect filled sharp containers from clinics and deliver laboratory specimens to airport  
• Staff monitor status & stock of supplies, equipment, & consumables | | |
| Guidelines on vaccine management, transport, cold chain, and disposal & destruction | • All relevant staff are informed on how to manage vaccines including, cold chain maintenance, and disposal & destruction of all syringes, needles and other hospital waste by incineration, burning and burying  
• Provide regular supervision for all staff | Supervisor’s check lists and reports | |

## VACCINE SUPPLY AND QUALITY

| Efficient vaccine forecasting | • Vaccine forecasting should be calculated based on the number of live births and wastage  
• Any planned mass campaigns should be planned in advance to ensure adequate vaccine is ordered | Number of vaccine doses (used and wastage) within 25% of the estimated requirement | EPI co-ordinator with Chief Pharmacist |
|---|---|---|---|
| Reduce vaccine wastage for single dose vials to <25% | • Reduce wastage rates in unopened single dose vials to 5% and wastage rates in opened single dose vials to <20% by ensuring a functioning cold chain, stock management and transport of vaccines  
• Ensure all vaccines have VVMs.  
• Improve administration techniques to avoid wastage. | Vaccine wastage rate by antigen  
Wastage rates in opened and unopened vials | |
| All vaccines should be assessed by a regulatory authority | • New vaccines should be evaluated by the Drug and Poisons Committee to regulate new vaccines |  |
| All vaccines should be procured from pre-qualified sources | • Procurement of vaccine from pre-qualified sources | All vaccines procured from pre-qualified sources |

<table>
<thead>
<tr>
<th><strong>ADVOCACY AND COMMUNICATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Active support by policy leaders</td>
</tr>
<tr>
<td>Active public promotion of immunisations</td>
</tr>
<tr>
<td>• Social mobilization strategies to improve the awareness of the community of the benefits of immunisation and the delivery of immunisation services should be carried out by the health workers</td>
</tr>
<tr>
<td>• IEC materials developed with introduction of new vaccines and changes to immunisation schedule</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>HUMAN RESOURCES DEVELOPMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel in all locations reach national staffing levels and standards</td>
</tr>
<tr>
<td>0 At least one in-service training per year in EPI is recommended for each subdivision. The cold chain and new Immunisation policy should be discussed in these meetings</td>
</tr>
<tr>
<td>0 All staff should be informed and trained when any new vaccines are introduced and when there are changes to immunisation schedules</td>
</tr>
<tr>
<td>• The new policy be discussed with the Nursing School and FSMed and changes incorporated into their training</td>
</tr>
<tr>
<td>• Develop, test, print, and distribute EPI manuals</td>
</tr>
<tr>
<td>• Discuss EPI technical issues in sub-divisional in-service meetings</td>
</tr>
<tr>
<td>• One day training workshops for Government Pharmacy staff</td>
</tr>
<tr>
<td>Supervisor’s report</td>
</tr>
</tbody>
</table>
## FINANCES

<table>
<thead>
<tr>
<th>Sustainable financial mechanism</th>
<th>• Ensure adequate budget for procurement of vaccines, cold chain needs, and maintenance of EPI consumables.</th>
<th>EPI co-ordinator</th>
</tr>
</thead>
</table>

## NEW VACCINE INTRODUCTION

<table>
<thead>
<tr>
<th>Ensure new vaccines are implemented through a systematic process</th>
<th>• Establish a Interagency Committee to assess the need of new vaccine introduction</th>
<th>New vaccines introduced through Interagency Committee</th>
<th>EPI co-ordinator</th>
</tr>
</thead>
</table>

## IMMUNISATION RESEARCH

<table>
<thead>
<tr>
<th>Undertake appropriate immunisation research as required</th>
<th>• Identify priority needs and establish a research agenda.</th>
<th>Projects commenced and completed</th>
<th>EPI-co-ordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Conduct research in EPI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Disseminate findings of research conducted</td>
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</tbody>
</table>

## EVALUATION

<table>
<thead>
<tr>
<th>To evaluate Immunisation policy at midterm and end of 2015</th>
<th>• Establish and implement annual evaluation plan</th>
<th></th>
<th>EPI-co-ordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Conduct an EPI meeting quarterly to evaluate the implementation of EPI annual plan of action, review coverage, surveillance, supervisory visit reports and other EPI related issues. Act on results</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>• A national immunisation coverage survey should be conducted every 3-4 years as a means of evaluating coverage statistics.</td>
<td>Annual, midterm and end of 2015 evaluation report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Safe injection practices should be monitored</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vaccine wastage figures should be calculated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
41. References


23. WHO-recommended standards for surveillance of selected vaccine-preventable diseases.

For Further Information, please contact the

Deputy Secretary Public Health, National Advisor Family Health, Public Health Division or the National EPI Coordinator of the Ministry of Health Head Office,
2nd Floor, 88 Amy Street, Dinem House, Toorak, Suva.
Tel: (679)3306176/3211511/3221517
Fax(679)3306163
Email: info@health.gov.fj
41. Annexes

ANNEX 1: Characteristics of Target Vaccine Preventable Diseases

Diphtheria

Bacteriology

- Diphtheria is a bacterial infection caused by Corynebacterium diphtheriae.
- The exotoxin produced by C. diphtheriae acts locally on the mucous membranes of the respiratory tract to produce a pseudomembrane.
- Systemically the toxin acts on cells of the heart muscle, nervous system and adrenal glands.

Clinical features

- Spread is by droplets or by direct contact with sores or with articles soiled by infected persons.
- Transmission is increased in overcrowding and poor socio-economic conditions.
- The incubation period is 2-5 days. The disease is communicable for up to 4 weeks, but carriers may shed the organism for longer.
- Asymptomatic infections are common.
- The disease primarily infects the upper respiratory tract, but a skin form of diphtheria is common in tropical countries. It is characterised by an inflammatory exudate which forms a grayish or green membrane in the upper respiratory tract and which can cause acute severe respiratory obstruction.
- Diphtheria toxin can cause neuropathy and cardiomyopathy, which may be fatal.
- Recent outbreaks of diphtheria in the adult population in Russia and the Ukraine have demonstrated that a high vaccination rate is required to maintain protection of the entire population.

Haemophilus influenzae type b

Bacteriology

- Haemophilus influenzae type b (Hib) is a Gram negative cocco-bacillus, which has fastidious growth requirements in the laboratory and is therefore difficult to isolate.

- Strains isolated from respiratory tract specimens such as sputum and middle ear or sinus fluid are usually strains without a capsule, also known as nontypable. Although six capsular types have been described almost all Haemophilus influenzae isolates from sterile sites (blood, cerebrospinal fluid, joint or pleural fluid) are of one capsular type- type b.
- Invasive disease caused by Hib rarely occurred after the age of 5 years. Children less than 2 years of age are unable to mount an antibody response to the type b capsular polysaccharide, even following invasive disease.

Clinical features

- Invasive diseases caused by Hib include meningitis, pneumonia, epiglottitis, septic arthritis, cellulitis, and pneumonia. Hib is rarely isolated from the blood without a focal infection such as the above being evident.
- The classical signs of meningitis, neck stiffness and photophobia, are often absent in infants, who present with drowsiness, poor feeding, and high fever.
- Hib meningitis has a case fatality rate of 10-40%, and 20-40% of survivors have permanent brain damage.

Hepatitis B

Virology

- Hepatitis B virus contains a partially double stranded DNA. The outer surface of the virus contains the hepatitis B surface antigen (HBsAg).
- Other important antigenic components are the hepatitis B core-antigen (HbcAg), and the hepatitis B antigen (HBeAg).
- Antibodies developed to HBsAg (anti-HBs) indicate immunity, whereas persistence of HBeAg and HBsAg indicate infectivity, which is greater if HBeAg is positive.

Clinical features

- In developing countries the main route of transmission is perinatally (vertical transmission) from a carrier mother to her baby, which is more likely if the mother is positive for HBeAg, and horizontal transmission between young children.
- In industrialized countries, the main routes of transmission are sexual intercourse and blood to
blood contact (blood transfusions and intravenous drug use).

- The incubation period is 45 to 180 days and the period of communicability extends from several weeks before the onset of acute illness to usually the end of the period of the acute illness.
- In adults, the infection frequently causes symptomatic acute hepatitis (approximately 50%), but in young children, particularly those under one year of age, infection is usually asymptomatic.
- Acute illness is indistinguishable from other forms of hepatitis, and symptoms include fever, turning yellow (jaundice), tiredness, anorexia, nausea and vomiting, abdominal pain, especially in the right upper abdomen, muscle and joint pains, skin rashes, arthritis, and the passage of dark urine and light coloured stools.
- Fulminant hepatitis occurs in 1% of cases.
- Following acute infection, 1% to 12% of those infected as adults and up to 90% of those infected post-partum as neonates remain infected for many years. Such virus carriers may spread the infection to others and have significantly increased the risk of chronic hepatitis and primary liver cancer later in life.
- Carriers are identified by the long-term presence (greater than 6 months) of circulating HBsAg.
- Persons with chronic infection usually remain asymptomatic and may be unaware that they are infected, although they are capable of spreading the disease.
- Most of the serious complications associated with hepatitis B infection, however, occur in persons in whom chronic infection continues. Chronic active hepatitis develops in over 25% of carriers and 15-25% of such persons will die prematurely of cirrhosis (liver scarring) or liver cancer.

**Measles**

**Virology**

- Measles is a paramyxovirus.

**Clinical features**

- Measles is highly infectious acute viral illness.
- The infection is spread by respiratory droplets.
- The incubation period is 10-14 days. The prodrome, lasting 2-4 days, is characterised by fever, followed by cough, coryza (runny nose), and conjunctivitis (red eyes). The rash follows, typically beginning on the face and upper neck, and then becoming generalised. Measles is highly infectious from the beginning of the prodrome (3-5 days before the rash appears) period for as many as 4 days after the appearance of the rash.
- Complications from measles are more common and more severe in the chronically ill and very young children. This is particularly true in developing countries. Measles is often complicated by ear infections (2.5%) and pneumonia (4%). Acute encephalitis occurs in 2-10 per 10,000 reported cases.
- The case fatality rate for measles encephalitis is 10-15%, and 15-40% of survivors of this complication have permanent brain damage. Subacute sclerosing panencephalitis (SSPE) is a late complication of measles in about 1 per 25,000 cases. SSPE causes progressive brain damage and is always fatal.

**Pertussis**

**Bacteriology**

- Pertussis is caused by Bordetella pertussis, a Gram negative, pleomorphic bacillus.

**Clinical features**

- Pertussis (whooping cough) is an epidemic bacterial respiratory infection.
- Bordetella pertussis is highly infectious, spreading by respiratory droplets to 70-100% of household contacts.
- Most school-aged children with pertussis have the characteristic paroxysmal cough with inspiratory whoop. The cough may persist for up to 3 months and may be associated with vomiting.
- The case fatality rate for pertussis is 0.3% but the mortality rate in infants under 6 months is higher (0.5%). Case fatality rates are higher when epidemics occur. Infants, particularly if preterm, may present with apnoea (stop breathing) and little or no whoop or cough. Pertussis causes lack of oxygen to the
brain (hypoxic encephalopathy) which can lead in brain damage and death. The most common cause of death in pertussis infection is pneumonia, sometimes complicated by seizures and encephalopathy.

- Epidemics occur every 3-4 years. Many cases of pertussis have been recognised in the adult population and adolescents and these individuals form a significant reservoir of infection.

**Poliomyelitis**

**Virology**

- Polio is an enterovirus.
- There are three polio serotypes, P1, P2, and P3.
- The virus enters through the mouth, multiplies in the throat and gastrointestinal tract and continues to be excreted in stools for several weeks. The virus invades local lymphoid glands, enters the bloodstream and may then infect and replicate in cells of the central nervous system.

**Clinical Features**

- Poliomyelitis is an acute illness following gastrointestinal infection by one of the three types of poliovirus.
- Transmission is through faecal-oral spread.
- The incubation period ranges from 3 to 21 days. Cases are most infectious from 7-10 days before and 7-10 days after the onset of symptoms. The vaccine virus may be shed in the faeces for 6 weeks or more.
- The infection may be asymptomatic. If symptoms occur, they may include headache, gastro-intestinal disturbance, tiredness, and stiffness of the neck, back, with or without paralysis. Sterile meningitis may also occur. Paralytic polio may be spinal (79%), bulbar (2%), or bulbospinal (19%). The case fatality rate in paralytic polio is 2-5% in children, 15-30% in adults and up to 75% in bulbar polio.
- The infection rate in households with susceptible young children can reach 100%. The proportion of asymptomatic to paralytic infections may be as high as 1,000 to 1 in children and 75 to 1 in adults, depending on the poliovirus type as well as social and environmental conditions.

**Rubella**

**Virology**

- Rubella is a togavirus.

**Clinical Features**

- Rubella is generally a mild infectious disease.
- Infection is spread by respiratory droplets.
- The incubation period is 14-21 days, and the period of infectivity is from 1 week before until 4 days after the onset of the rash.
- It causes a transient red rash, lymphadenopathy involving post auricular (behind the ear) and suboccipital (back of the head) glands, and occasionally arthritis and joint pains. Complications such as neurological disorders and thrombocytopenia (low platelets) may occur but are rare.
- Clinical diagnosis is unreliable since the symptoms are often brief and can be caused by other viruses.
- Rubella infection can only be confirmed by laboratory tests.
- Maternal rubella infection in the first 8-10 weeks of pregnancy results in foetal damage in up to 90% of affected pregnancies, and multiple defects are common. This group of foetal abnormalities is called congenital rubella syndrome (CRS). The risk of damage declines to about 10-20% by 16 weeks gestation. After this stage of pregnancy, foetal damage is rare but has been reported up to 20 weeks. Foetal defects include intellectual disability, cataracts, deafness, heart defects, intrauterine growth retardation, and inflammatory lesion of the lung, brain, liver, and bone marrow. Some infected infants may appear normal at birth, but defects, especially sensorineural deafness, may be detected later.

**Tetanus**

**Bacteriology**

- Tetanus is caused by Clostridium tetani, a motile, non-capsulated, Gram-positive rod which forms endospores.
Spores of the bacillus are found in manured soil and can enter wounds. Once in the wound, the spores can grow anaerobically (without oxygen). C. tetani produces a potent toxin which has two components, tetanospasm (a neurotoxin) and tetanolysin (a haemolysin).

**Clinical features**

- Tetanus is an acute, often fatal disease caused by the toxin produced by Clostridium tetani.
- The neurotoxin acts on the central nervous system to cause muscle rigidity with painful spasms.
- The disease usually occurs after an incubation period of 4-21 days (range 1 day to several months). The average time to onset after injury is 7 days; 15% of cases occur within 3 days and 10% after 14 days.
- Generalised tetanus, the most common form of the disease, is characterised by increased muscle tone and generalised spasms. Early symptoms and signs include increased tone in the jaw muscles (trismus or lock jaw), dysphagia (difficulty swallowing), stiffness or pain in the neck, shoulder, and back muscles. Some patients develop paroxysmal, violent, painful, generalised muscle spasms. Generalised tetanus often causes reduced breathing, apnoea or laryngospasm (blocked airway). The patient may have a fever. Sudden cardiac arrest sometimes occurs.
- Other complications include pneumonia, fractures, muscle rupture, deep vein thrombophlebitis (blood clots), pulmonary emboli (blood clots in the lungs), ulcers, and rhabdomyolysis (breakdown of the muscles). Death results from respiratory failure, hypertension, hypotension, or cardiac arrhythmia.
- Neonatal tetanus is a common cause of neonatal death in the newborn period. It usually occurs in the generalised form and is usually fatal if left untreated. It develops in children born to inadequately immunised mothers, frequently after unsterile treatment of the umbilical cord stump. Its onset is usually during the first 2 weeks of life. Poor feeding, rigidity, and spasms are typical features of neonatal tetanus.

### Tuberculosis

**Bacteriology**

- Tuberculosis (TB) is caused by Mycobacterium tuberculosis complex (M.TB complex), a slow growing, aerobic, acid-fast bacillus.
- M. tuberculosis is the commonest cause of TB worldwide.

**Clinical features**

- Lung disease is the commonest form of the disease.
- Cough, fever, sweats, weight loss, and haemoptysis (coughing up blood) are common symptoms of lung TB.
- TB lymphadenitis is the most common disease after lung TB, but the disease can occur in any part of the body, including meninges (lining of the brain), bone, and kidneys.
- Disseminated disease (miliary TB) and meningeal TB are the most serious forms, particularly for children.
- Most individuals with M. tuberculosis remain asymptomatic, but a small proportion develops clinical illness, sometimes many years after the original infection.
- Infants, HIV infected individuals, or other immunocompromised individuals are more prone to rapidly progressive or generalised infection.

### Rotavirus Gastroenteritis

**Virology**

- Rotaviruses are non-enveloped RNA viruses in the family Reoviridae

**Clinical Features**

- Rotavirus is the predominant agent of severe dehydrating gastroenteritis in infants and young children.
- The spectrum of illness ranges from asymptomatic infection, to mild to watery diarrhoea of limited duration, to severe dehydrating diarrhoea with vomiting, fever, electrolyte imbalance, shock and death.
• Rotavirus infections are often more severe than other common causes of diarrhoea and are more likely to be associated with admission and hospitalisation.

• The incubation period is 1 to 3 days, and symptoms usually resolve in 3 to 7 days.

Pneumococcal Disease

Bacteriology

• Streptococcus pneumoniae are gram positive streptococci with over 90 capsular antigenic types being recognised.

• Some types are more commonly associated with invasive disease and others respiratory disease.

Clinical Features

• Invasive pneumococcal disease (IPD) is defined as isolation of S. pneumonia from a normally sterile site, most commonly the blood.

• The major clinical syndromes include pneumonia, meningitis and bacteraemia without focus.

• Those with asplenia, immunological deficiency, acute nephrotic syndrome, multiple myeloma, HIV/AIDS, chronic renal failure, organ transplantation, and lymphoid malignancies may not be able to mount an adequate immune response to pneumococcal capsular antigens.

• Those with chronic cardiovascular or pulmonary disease, diabetes mellitus, alcohol related problems, cirrhosis, or CSF leak and those who smoke often have a high incidence or severity of disease.

Human Papillomavirus

Virology

• Human papillomaviruses (HPV’s) are small non-enveloped viruses that have circular double stranded DNA.

• HPV’s infect and replicate within cutaneous and mucosal epithelial tissues, most commonly involving the skin or anogenital tract.

• There are 40 distinct HPV genotypes that affect the genital tract, of these 15 are designated high risk as they are usually associated with cervical cancer.

• HPV genotypes 16 & 18 are the causative agents in 70 to 80% of all cervical cancers.

• High risk HPV genotypes are associated with a spectrum of other anogenital diseases, including vulval, vaginal, penile and anal cancers and their precursors.

• Persistent HPV infection is a necessary precursor of cervical cancer, but is not sufficient in itself to cause the disease. For pre-cancerous lesions to form and progress to cancer, the crucial event appears to be the HPV DNA integration into the host cell genome, which interferes with the expression and regulation of proteins responsible for normal cell growth and repair.

Clinical Features

• HPV infection is often sub clinical, but dependent upon the infecting HPV genotype, may result in lesions that include cutaneous warts, genital warts, cervical and other anogenital tract dysplasias and cancers and respiratory papillomatosis.

• Most HPV genital tract infections are cleared within 12 to 24 months.

• In a minority of infections, estimated 3 to 10%, the virus persists.
## Table 13: Epidemiology of Target Vaccine Preventable Diseases

<table>
<thead>
<tr>
<th>Disease</th>
<th>Agent</th>
<th>Reservoir</th>
<th>Spread</th>
<th>Transmission Period</th>
<th>Asymptomatic Infection</th>
<th>Duration of natural immunity</th>
<th>Risk factors for infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria</td>
<td>Toxin from <em>C. diphtheriae</em></td>
<td>Humans</td>
<td>Close respiratory or cutaneous contact</td>
<td>Usually &lt; 2 weeks; some chronic carriers</td>
<td>Common</td>
<td>Usually lifelong</td>
<td>Crowding, low socioeconomic status</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>DNA virus</td>
<td>Humans</td>
<td>Perinatal, child-child, sexual, blood-blood contact</td>
<td>Few weeks before onset of symptoms to end of acute illness; chronic carriers &gt; 30 years</td>
<td>Common especially in infants</td>
<td>If develops lifelong</td>
<td>HBeAg+ mother, IVDU*, unprotected sex, unscreened blood products</td>
</tr>
<tr>
<td>Hib</td>
<td><em>Bacterium</em> (Hib)</td>
<td>Humans</td>
<td>Close respiratory contact</td>
<td>Chronic carriage for months</td>
<td>Common</td>
<td>Lifelong</td>
<td>Young age, low socioeconomic status, crowding</td>
</tr>
<tr>
<td>Measles</td>
<td>RNA virus</td>
<td>Humans</td>
<td>Close respiratory contact of aerosolized contacts</td>
<td>4 days before until 2 days after rash</td>
<td>May occur but relative importance unknown</td>
<td>Lifelong</td>
<td>Crowding, low socioeconomic status</td>
</tr>
<tr>
<td>Pertussis</td>
<td>Humans</td>
<td><em>Bacterium</em> (B. pertussis)</td>
<td>Close respiratory contact</td>
<td>Usually &lt; 3 weeks (starts before whoop)</td>
<td>Mild illness common; may not be diagnosed</td>
<td>Prolonged</td>
<td>Crowding, young age</td>
</tr>
<tr>
<td>Polio</td>
<td>Enterovirus (serotypes 1,2, and 3)</td>
<td>Humans</td>
<td>Faecal-oral &amp; close respiratory contact</td>
<td>7-10 days before and after acute symptoms</td>
<td>&gt; 100 sub clinical infections for each paralytic case</td>
<td>Type-specific immunity lifelong</td>
<td>Poor environmental hygiene</td>
</tr>
<tr>
<td>Rubella</td>
<td>Togavirus</td>
<td>Humans</td>
<td>Close respiratory contact</td>
<td>1 week before until 4 days after rash</td>
<td>May occur</td>
<td>Lifelong</td>
<td>Crowding</td>
</tr>
<tr>
<td>Disease</td>
<td>Pathogen</td>
<td>Hosts</td>
<td>Mode of transmission</td>
<td>Period of infectivity</td>
<td>Incubation period</td>
<td>Risk Factors</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>-------</td>
<td>----------------------</td>
<td>-----------------------</td>
<td>-------------------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>Bacteria (S. pneumonia)</td>
<td>Humans</td>
<td>Close respiratory contact</td>
<td>Penicillin renders patients with susceptible strains non-infectious within 24–48 hours</td>
<td>Lifelong</td>
<td>Young age, low socioeconomic status, crowding</td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td>RNA virus</td>
<td>Humans</td>
<td>Faecal oral route, close person to person contact</td>
<td>During the acute stage of disease and while viral shedding continues. Excretion of virus for greater than 30 days has been documented</td>
<td>Common</td>
<td>Lifelong</td>
<td>Young age, low socioeconomic status, crowding</td>
</tr>
<tr>
<td>HPV</td>
<td>DNA Virus</td>
<td>Humans</td>
<td>Close contact with infected skin or mucosal surfaces</td>
<td>Common</td>
<td></td>
<td>Increasing numbers of sexual partners</td>
<td></td>
</tr>
<tr>
<td>Tetanus</td>
<td>Toxin from C. tetani</td>
<td>Animal intestines, soil</td>
<td>Spore enter body through wounds/umbilical cord</td>
<td>No person-person transmission</td>
<td>No</td>
<td>No immunity induced by infection</td>
<td>Contamination of umbilical cord, agricultural work, soil contaminated wound</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>M. tuberculosis</td>
<td>Humans</td>
<td>Airborne droplets from sputum positive person</td>
<td>As long as sputum AFB** positive</td>
<td>Common but not important in transmission</td>
<td>Unknown; reactivation of old infection commonly causes disease</td>
<td>Low socioeconomic status, poor health care access; immunodeficiency, malnutrition, alcoholism, diabetes</td>
</tr>
</tbody>
</table>
## Table 14: Vaccine Efficacy and Immunogenicity

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Vaccine Efficacy</th>
<th>Nature of protective antibodies &amp; protective level of antibodies</th>
<th>Duration of immunity after primary doses</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria Toxoid</td>
<td>&gt;87%</td>
<td>Antitoxin; 0.01 IU/mL by neutralisation test</td>
<td>Variable, probably around 5 years; longer in presence of natural boosting &amp; booster dose</td>
<td>Recent trends to lower antibody levels in adults because of &lt; natural boosting</td>
</tr>
<tr>
<td>Pertussis</td>
<td>Estimates vary: 85-95%</td>
<td>Probably provided by antibodies against different components of pertussis bacteria</td>
<td>Unknown, some evidence that it wanes over time</td>
<td>Lack of immunological correlates of protection</td>
</tr>
<tr>
<td>Tetanus Toxoid</td>
<td>&gt;95% after 3 doses; &gt;80% after 2 doses</td>
<td>Antitoxin; 0.01 IU/mL by neutralisation test</td>
<td>5 years</td>
<td>5 doses in adults provides 20 years protection</td>
</tr>
<tr>
<td>Hib</td>
<td>&gt;95% for invasive disease</td>
<td>Antibody to Hib capsular polysaccharide; 1 mcg/mL</td>
<td>Unknown but lasts for at least 3 years beyond period of greatest exposure</td>
<td>Less protective in HIV+ children</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>&gt;75%-95%; higher against chronic carriage than against infection with the virus</td>
<td>Antibody to surface antigen &gt; 10mIU/mL</td>
<td>&gt; 15 years, further follow up is ongoing</td>
<td>Efficacy lower if injected into gluteal muscle</td>
</tr>
<tr>
<td>Measles</td>
<td>&gt;80% at 9 months old; 90% after first dose at 12 months, 99% with 2 doses</td>
<td>Neutralising antibody; 200 mIU/mL by neutralization test</td>
<td>Lifelong if boosted by wild virus</td>
<td>Measles immunogenicity lower if maternal antibody present</td>
</tr>
<tr>
<td>Polio</td>
<td>&gt;90% in industrialised countries; 72-98% in hot climates; lower protection against type 3</td>
<td>Neutralising antibody; detectable antibody thought to equal protection</td>
<td>Lifelong if boosted by wild virus</td>
<td>Primary series may not give adequate protection in hot climate</td>
</tr>
<tr>
<td>Rubella</td>
<td>Single dose &gt;95% protection</td>
<td></td>
<td>At least 16 years probably lifelong</td>
<td></td>
</tr>
</tbody>
</table>

ANNEX 3: Vaccine Efficacy and Immunogenicity
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Immunogenicity</th>
<th>Antibody measurement</th>
<th>Antibody threshold or test method</th>
<th>Duration of immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumococcal</td>
<td>87.7-100% 1 month after 3rd dose</td>
<td>As serotype specific thresholds were not identified, the WHO recommended the use of a single antibody threshold for all serotypes. This threshold was derived from a pooled analysis of three efficacy trials conducted with pneumococcal conjugated vaccines and was found to be 0.35 g/mL with the second generation ELISA available at that time.</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td>85 to 100% after 2 doses</td>
<td>Serum anti-rotavirus IgA antibody titres 20U/ml (by ELISA) one month after the second dose of vaccine</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>In clinical trials, 99% of initially seronegative subjects had seroconverted to both HPV type 16 and 18 one month after the third dose</td>
<td>High efficacy of CERVARIX was maintained for up to 6.4 years (approximately 77 months) after dose one</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>Tuberculosis (BCG)</td>
<td>0-80% for pulmonary TB; 75-86% for meningitis &amp; military TB</td>
<td>Not known; induces cell mediated immunity</td>
<td>Unknown, some evidence that immunity wanes with time</td>
<td></td>
</tr>
</tbody>
</table>
# Table 15: Characteristics of the Vaccines Used in the Fiji Immunisation Schedule

<table>
<thead>
<tr>
<th>Disease</th>
<th>Nature of Vaccine</th>
<th>Form</th>
<th>Adjuvant</th>
<th>No. of doses and route</th>
<th>Heat stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria</td>
<td>Toxoid</td>
<td>Liquid</td>
<td>Al(OH)₃/AlPO₄</td>
<td>5 for children intramuscular; Women 15-44 years old need 5 TT intramuscular injections</td>
<td>Medium-High</td>
</tr>
<tr>
<td>Pertussis</td>
<td>Killed whole cell pertussis bacterium</td>
<td>Lyophilised</td>
<td>None</td>
<td>Infants need 3-4 doses of Hib vaccine</td>
<td></td>
</tr>
<tr>
<td>Tetanus</td>
<td>Toxoid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib</td>
<td>Purified capsular polysaccharide from Hib conjugated to a carrier protein</td>
<td>Lyophilised</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>HBsAg</td>
<td>Liquid</td>
<td>Al(OH)₃/AlPO₄</td>
<td>3 intramuscular</td>
<td>High</td>
</tr>
<tr>
<td>Measles-Rubella</td>
<td>Attenuated live virus</td>
<td>Freeze-dried</td>
<td>None</td>
<td>2 for measles &amp; 1 for rubella; intramuscular</td>
<td>Medium in form; low lyophilised if reconstituted</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>Conjugate</td>
<td>Liquid</td>
<td>None</td>
<td>3 doses, Intramuscular</td>
<td>Low</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>Attenuated live virus</td>
<td>Liquid</td>
<td>None</td>
<td>2 doses, Oral</td>
<td>Low</td>
</tr>
<tr>
<td>HPV</td>
<td>Recombinant</td>
<td>Liquid</td>
<td>AS04</td>
<td>3 doses, Intramuscular</td>
<td>CERVARIX can be kept out of refrigeration at temperatures at or below 25°C, for a total time of not more than 72 hours or at temperatures between 25°C and 37°C, for a total time of not more than 24 hours</td>
</tr>
<tr>
<td>Polio</td>
<td>Attenuated live viruses of 3 types</td>
<td>Liquid</td>
<td>None</td>
<td>4 oral</td>
<td>Low</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>Live attenuated mycobacterium bovis</td>
<td>Freeze-dried</td>
<td>None</td>
<td>1 intradermal</td>
<td>Medium in lyophilised form; low if reconstituted</td>
</tr>
</tbody>
</table>
Annex 5: EPI Related Public Health Information Reporting

Immunisation

The provision of immunisation services is an important part of public health care delivery and the monitoring of coverage rates is an essential part of preventing disease outbreaks and for the evaluation of immunisation programmes. Conscientious and deliberate efforts are required to control vaccine-preventable disease. Accurate information about the number of immunisations, populations, and defaulters is an essential part of this process.

This activity aims to reduce the incidence of vaccine-preventable diseases. In the top line record your immunisation Target population for the year. This is the number of children under 1 year of age in your catchment area. This target population should be calculated each year from the number of births in the previous and used in your local coverage monitoring graphs.

Childhood Immunisation

<table>
<thead>
<tr>
<th>6 Immunisation</th>
<th>Target population of under 1 child to be immunised (year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HepB0</td>
</tr>
<tr>
<td>On Time</td>
<td></td>
</tr>
<tr>
<td>Late</td>
<td></td>
</tr>
<tr>
<td>Immunised</td>
<td></td>
</tr>
<tr>
<td>Out of area</td>
<td></td>
</tr>
</tbody>
</table>

• If you vaccinate a child from another area, you should send an ‘out of area’ notification to the Medical Area the child comes from.
• If you receive an ‘out of area’ report, do not add the child to your PHIS Monthly Summary, as that vaccination will have been recorded in the PHIS report of the area where the vaccination was given. Of course you should update the child’s immunisation record.
• The HepB and BCG birth vaccinations should only be recorded for the community births where you have immunised the baby. Babies born in Hospital should have been immunised in Hospital.
• Note that OPV is no longer given at birth in the new immunisation schedule.

Indicators calculated from Immunisation data
✔ Immunisation coverage.
✔ Immunisation dropout rates.
✔ Proportion of vaccinations given on time.

Counting rules

• Record whether the vaccination was given on time or later. The sum of the On Time and Late vaccinations should add up to the Immunised line.
• This Immunised total row should include all immunisations given in the past month, no matter whether the child was from inside or outside your catchment area.
• A Late vaccination is one that is given 2 weeks or more after the due date.
• If a child is from outside your catchment area, record whether the immunisation was On Time or Late and include in the Immunised row. Also record the immunisation in the Out of area row.
• You must record all Out of area vaccinations given, as this is very important for calculation of national immunisation coverage rates.
## School Immunisation

<table>
<thead>
<tr>
<th>School Name</th>
<th>Date Visited</th>
<th>School Size</th>
<th>New Enrolments</th>
<th>School Leavers</th>
<th>HPV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 6: Disease Surveillance

6.1 Diphtheria Surveillance

Case Definition

An illness characterised by laryngitis or pharyngitis or tonsillitis, and an adherent membrane of the tonsils, pharynx, and/or nose.

Data Collected

- Number of cases
- Number of third doses of diphtheria toxoid containing vaccine (e.g. DTP3, 4 and 5) administered to infants

Data Analysis

- Number of cases and incidence rates by month, year, and geographical area
- DTP3 coverage by year and geographical area
- DTP1-DTP3 dropout rate
- Completeness/timeliness of monthly reporting
- Age-specific, sex-specific and district-specific incidence rates by month and year
- Cases by immunisation status
- Cases treated on time (d7 days of onset)
- Case fatality rate

6.2 Fever and Rash Surveillance (Measles)

Surveillance should identify high-risk populations to predict and prevent possible outbreaks.

Case Definition

Clinical Case Definition

- Any person in whom a clinician suspects measles infection; or
- Any person with fever and maculopapular rash (nonvesicular) and cough, coryza (runny nose) or conjunctivitis (red eyes).

Health care workers should:

- Report all suspected cases of measles to the Sub-Divisional Medical Officer.
- Take a single blood specimen for serological testing
- Fill in the case reporting form.
- Suspected cases are classified as either confirmed or discarded cases. All cases should be reported to WHO.

Laboratory Criteria for Diagnosis

- Presence of measles-specific IgM antibodies

Case Classification

- Confirmed case: one which meets the laboratory confirmed definition and/or the clinically confirmed definition:
  - A suspected case that meets the clinical case definition and was not completely investigated (for any reason);
  - A suspected case that has measles-specific IgM antibodies; and/or there is epidemiological linkage to another laboratory confirmed case.
- Imported case: A confirmed measles case is a person who travelled in another country with documented measles during the possible exposure period (7-18 days prior to rash onset) and was in the area where measles was occurring. The possibility of local exposure to measles must be excluded after careful community evaluation.
- Discarded case (not measles): a case which lacks laboratory confirmation of measles or if there was serological evidence of another febrile rash illness such as dengue or rubella.
*If the case has been vaccinated within six weeks before the specimen has been taken, and an active search in the community does not find any evidence of measles transmission and there is no history of travel to areas where measles virus is known to be circulating, the case should be discarded.

**Type of Surveillance**

Case based surveillance should be conducted and every case should be reported and investigated immediately. Laboratory samples should be collected from every sporadic case. Suspected measles outbreaks should be confirmed by conducting serology on the first 5-10 cases only. Urine, nasopharyngeal or lymphocyte specimens may provide additional information for suspected imported cases. Monthly reporting at the health facility and districts should be submitted even if there are no cases (“zero reporting”).

**Data Collected**

- Number of cases by age groups and immunisation status
- Number of measles vaccine doses administered to infants aged under 12 months and children aged 12-23 months, and at school entry.

**Data Analysis**

- Number of cases and incidence rates by month and year, and geographical area
- Age-specific, sex-specific and district specific incidence rates
- Measles-rubella vaccine 1 and 2 coverage by year and geographical area
- BCG-measles dropout rate
- Completeness/timeliness of monthly reporting
- Proportion of known outbreaks confirmed by the laboratory
- Proportion of cases notified d* 48 hours after rash onset
- Proportion of cases with adequate specimen and laboratory results within 7 days
- Proportion of confirmed cases with source of infection identified
6.3 Neonatal Tetanus

Case Definition

Suspected Cases

- Any neonatal death between 3 and 28 days of age in which the cause of death is unknown;
- Any neonate reported as having suffered from neonatal tetanus between 3 and 28 days of age and not investigated.

Confirmed Case

- Any neonate with normal ability to suck and cry during the first 2 days of life and who
  - Between 3 and 28 days of age, cannot suck normally; and
  - Becomes stiff or has spasms (i.e., jerking of the muscles).

Types of Surveillance

- Routine monthly surveillance: the number of confirmed cases should be included in the
- Monthly EPI Surveillance Form and should be reported separately from other (non-neonatal) tetanus.
- Zero reporting: all sites should report even if there are no cases.

Data Analysis

- Number of doses of tetanus toxoid administered during routine immunisation to pregnant or newborn babies.
- Completeness and timeliness of monthly zero reports.
- Number of cases and incidence rates by month, year, and district.
- Incidence rates per 1,000 live births.
- Tetanus toxoid coverage in pregnant women.
- Proportion of children with DTP3 and 4 coverage.
- Completeness/timeliness of monthly reporting.
- Number, rate of confirmed cases by sex, area, month, year.
- Percentage of confirmed cases by place of birth, protection status at birth, type of cord cutting tools used, type of umbilical stump dressing used.
- Percentage of confirmed cases whose mothers received antenatal care.
- Percentage of confirmed cases whose trigger an active search in the community.
- Percentage of confirmed cases whose trigger an immunisation response.

6.4 Pertussis (Whooping Cough)

Case Definition

Clinical Case Definition

- A case diagnosed as pertussis by a physician or
- A person with a cough lasting at least 2 weeks with at least one of the following symptoms:
  - Paroxysms (i.e., fits of coughing)
  - Inspiratory whooping
  - Post-tussive vomiting (i.e., vomiting immediately after coughing) without other apparent cause.

Surveillance

- Case based surveillance with information collected on age, immunisation status, and final outcome should be collected.

Outbreak Investigation

- Every pertussis outbreak should be reported immediately to the appropriate WHO regional office and investigated to understand why it occurred.

Data Analysis

- Number of cases by age group (<1 year, 1-4 years, >5 years) and immunisation status
- DTP1-DTP3 dropout rate
6.5 Acute Flaccid Paralysis Surveillance (Poliomyelitis)

Acute Flaccid Paralysis Surveillance (AFP) surveillance is critical for documenting the continued elimination of poliovirus circulation.

Case Definition

Clinical case definition

- Any child under 15 years of age with AFP (including Guillain-Barre syndrome) or
- Any person of any age with paralytic illness if polio is suspected.

Case classification

- Suspected case: A case that meets the clinical case definition
- Confirmed case: see below;

Laboratory Confirmation

- All suspected cases should be transferred to a divisional hospital.
- All specimens need to be sent to the WHO accredited facility, VIDRL Melbourne Australia, for testing.

Surveillance

- Zero reporting
- Monthly returns of the Monthly EPI Surveillance Form including NT, measles, and CRS.
Data Collected

- Number of AFP cases reported by age, and geographical area
- Number of AFP cases with 2 stool samples collected within 14 days
- Number of OPV3 doses administered
- Non-polio enterovirus isolation rate

Data Analysis

- Annual non-polio AFP rate per 100,000 for under 15 year olds
- OPV3 coverage rates
- Percentage of AFP cases with 2 stool samples collected within 14 days
- Percentage of specimens in which laboratory results sent within 28 days of receipt of specimens
- Monthly reporting rates

6.6 Rubella and Congenital Rubella Syndrome

Rubella

Suspected Rubella Cases

- Any patient of any age in who a health worker suspects rubella. A health worker should suspect rubella when a patient presents with: fever, maculopapular rash, and cervical, suboccipital or postauricular adenopathy or arthralgia/arthritis.

Clinical Confirmation

- Rubella cannot be confirmed clinically: laboratory confirmation is required.

Laboratory-Confirmed Rubella Cases

- A laboratory confirmed case is a suspected case with a positive blood test for rubella specific IgM. The blood specimen should be obtained within 28 days after the onset of the rash.

Epidemiologically Confirmed Rubella Case

- A patient with a febrile rash illness that is linked epidemiologically to a laboratory confirmed case.

Congenital Rubella Syndrome (CRS)

Suspected CRS Case

- Any infant less than one year of age in whom a health worker suspects CRS: heart disease, and/or suspicion of deafness and/or one or more of the following signs: white pupil (cataract), diminished vision, pendular movement of the eyes (nystagmus), squint, smaller eyeball (microphthalmus), or larger eyeball (congenital glaucoma).

Clinically Confirmed CRS Case

- An infant in whom a qualified physician detects at least two of the complications listed in (a) below or one in (a) and one in (b):
  a. Cataract(s), congenital glaucoma, congenital heart disease, loss of hearing, pigmentary retinopathy.
  b. Purpura, splenomegaly, microcephaly, mental retardation, meningoencephalitis, radiolucent bone disease, jaundice that begins within 24 hours after birth.

Laboratory Confirmed CRS Case

- An infant with clinically confirmed CRS who has a positive blood test for rubella IgM (100% of such infants are positive at age 0-5 months; 60% are positive at 6-11 months).

Congenital Rubella Infection

- If a mother has suspected or confirmed rubella in pregnancy her infant should have rubella IgM blood test. An infant who does not have clinical signs of CRS but who has a positive rubella IgM test is classified as having congenital rubella infection (CRI).

Surveillance

- Routine monthly reporting of the number of suspected and confirmed CRS cases, zero reporting should be required. All suspected CRS cases in infants aged under 1 year should be investigated. The investigation should include clinical and laboratory analysis.
- Routine monthly reporting of the number of suspected and confirmed rubella cases linked with AFP, measles, NT reporting.
- All febrile rash illnesses in pregnancy should be investigated.
• If a rubella outbreak is detected 5-10 suspected rubella cases should be investigated with rubella IgM tests. Active surveillance (regular site visits to look for unreported cases) should be undertaken to improve detection of suspected CRS infants under 1 year and continued for 9 months after the last reported case of rubella.

**Data Collected**

• The number of suspected CRS cases in each health facility by month.
• Febrile rash illnesses, the number of febrile rash illnesses reported each month
• The number of suspected rubella cases in each health facility per month.
• MR 1 and 2 vaccine coverage (%) for each target group in each health facility by month.

**Data Analysis**

• Number of CRS cases and incidence rate per 1000 live births per month, year, and district
• CRS cases per 1000 live births
• Number of rubella cases and incidence rates by month, year, and geographical area
• Age-specific, sex-specific, and district-specific rubella incidence rates
• Rubella vaccine coverage rates by target group and geographical area per year
• For CRS and rubella cases, completeness/timeliness of monthly reporting
## ANNEX 7: Vaccine Order

### DRAFT-VACCINES MONTHLY REPORT and REQUEST FORM

<table>
<thead>
<tr>
<th>Health facility:</th>
<th>Month:</th>
<th>Year:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (0-1 year)-T/Population: School Health-Class 1: Class 6:

### HPV -T/Population (Class 8/13 years-Girls only):

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>Unit Of Measure</th>
<th>S.O.H at the beginning of the month</th>
<th>Orders / Transfers received during the month</th>
<th>Quantity given in the month</th>
<th>Amount wasted. (Expired/ VVM damage, missing)</th>
<th>S.O.H at the end of the month</th>
<th>Expiry date of the vaccine</th>
<th>QTY to order</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG-20 doses</td>
<td>Vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT-Hep B-Hib 2 doses/1 dose</td>
<td>vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hep B -10 dose</td>
<td>Vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hep B -1 Dose</td>
<td>Vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M/R -10 Dose</td>
<td>Vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPV-10 Dose</td>
<td>Vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T/T -10 Dose</td>
<td>Vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotavirus-1 dose</td>
<td>Vials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1.5 mls)</td>
<td>Pre-filled syringe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal-1 dose</td>
<td>Pre-filled syringe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV-Cervarix</td>
<td>Single pre-filled syringe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Formula- Quantity to order: \( F = (A+B)-(C+D) \)

AEFI – YES: _____ NO: _____ Form(s) submitted: (1) to SDHS, (1) to National EPI Co-ordinator _______________________

### Type of fridge: Tick which is appropriate-

- MK 304 (Big ice-liner) ___
- HBC 200 ___
- MK 074 (Small ice-liner) ___
- RCW 50 EG (Blue fridge) ___
- MK 204 ___
- MKS 044 (Solar fridge-no battery) ___
- Domestic (Double door) ___
- Bar fridge ___

(If Cold Chain is breached due to fridge failure, please fill appropriate form and call C/C Technician)

### Monthly temperature verification:

Temperature (+2 to +8 C) maintained: Yes____ No____ Other Comments _______________________

Name of MCH Officer: ______________________________ Signature: ______________________ Date: ____________

Name of SDHS: ______________________________ SDHS Signature: ______________________ Date: ____________

Send complete form to Fiji Pharmaceutical Services (FPS), PO Box 106, and Fax 3388003/3388012

Phone: 3388000 ext 109

Before the 15th of every month for next month’s order.

**VACCINES WILL ONLY BE ISSUED UPON RECEIPT OF CORRECT COMPLETED FORM**

Distribution is on the 3rd week of every month

**ALWAYS REMEMBER:** The person completing this form is responsible for the safety of the vaccine!
ANNEX 8: Adverse Events Following Immunisation

Adverse events following immunisation (AEFI) should be documented and reported to the National EPI coordinator, NAFH, Director Public health, Chief Pharmacist through to the National Drugs and Therapeutics Committee and investigated promptly.

For currently used vaccines, any alleged reaction to a vaccine should be examined on the local level, and if it meets the criteria set below, an investigation into the event should begin.

The purpose of the investigation is to:

- Confirm or rule out the reported event;
- Identify other possible causes;
- Determine whether the event is isolated; and
- Inform the parties involved as appropriate.

8.1 Steps of Investigation

Initial assessment: The health care worker should inform parents/guardians about the safety of immunisation, reassure them, and explain that coincidental events can occur. Until the investigation is complete, it will be impossible to determine the cause(s) of the event. These could be programme-related, vaccine-related, not related to vaccination or unknown. In some situations, outside evidence will be necessary to identify the cause.

Programme-related:

- Dosage level.
- Method of administration.
- Contamination of needle and syringe.
- Improper handling of used needles.
- Vaccines reconstituted with wrong diluent.
- Improper amount of diluent.
- Improper preparation of vaccines.
- Drugs substituted for vaccines or diluents.
- Contaminated vaccine or diluent.
- Improperly stored vaccines.
- Failure to discard vaccines after their expiration date and subsequent use.
- If there are several cases, observe whether the same health worker administered the vaccine.

Vaccine-related

This is a personal and highly unusual incident. It is very important to investigate each case, and it is expected that a low incidence of vaccine-related events will be confirmed.

Not related to vaccination

When clinical events coincide with vaccination, it means that the event could have occurred even if the person had not been immunised. The best evidence to support the argument that this may have been a coincidental event is for the same event to have been occurred in a population that was not immunised.

8.2 Information Required for the Investigation

The investigation report should include:

- Reasons for the diagnosis and possible causes.
- Person or number of persons found to have the same problem.
- Suspected antigen.
- Symptoms and signs common to all patients.
- Population vaccinated with the same vaccine lot.
- Names of the health workers who vaccinated the population in question.
- Whether health workers involved used the same vaccine lot.
- How many of the unimmunised population in the same age group and same community or health centre in the area in question presented the same symptoms.
- Time between vaccination and onset of symptoms.
- Immunisation practices of health workers involved, including handling, storage, transportation, and administration of vaccines.
- Laboratory findings, if necessary.
- Investigation form used to collect the information (if one was used).
After the investigation, the information should be analysed by an Adverse Drug Reaction Committee to determine the cause, confirm the diagnosis or suggest other possible diagnoses.

8.3 Actions to be taken

The actions to be taken should be based on the conclusions of the investigation, which will have one of the following outcomes:

- The event is definitely not related to vaccination;
- The event is related to vaccination;
- Programme-related
- Vaccine-related
- The investigation is inconclusive.

Regardless of the outcome the concerned parties should be informed of the outcome. This includes the parents, the health facilities, divisional and subdivisional health officers, and media where appropriate.

8.4 Education About Immunisation Safety

Health care workers should be informed of known side effects of immunisation and the frequency at which they occur (Table 12).

Also, health care workers need to know about events caused by programme-related errors.

Every health care worker should undergo training to learn how to avoid making programme related errors, which could lead, to an increase in side effects attributable to vaccination.

During critical time periods (i.e. vaccination campaigns, ongoing investigations, etc.) health care workers should have information readily available to learn the facts about immunisation, and disseminate accurate and truthful information to parents.

Table 16: Side Effects of Vaccination

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>SIDE EFFECTS OF VACCINE</th>
</tr>
</thead>
</table>
| OPV     | • <1% vaccine recipients develop fever, diarrhea, headache, myalgias  
          • Vaccine-associated paralytic poliomyelitis:  
          • 1 case/2.4 million doses distributed (overall rate);  
          • 1 case/750,000 initial doses; and  
          • 1 case/6.9 million subsequent doses. |
| DTP     | Mostly due to the pertussis component of the vaccine. Local reactions such as pain, erythema and oedema are very common, and incidence increases with subsequent doses. Fever occurs 1, 2 doses, high fever (≥40.5°C) 1/330 doses, collapse 1/1,750 doses, convulsions 1/1,750 doses. Sterile abscesses are rare (6-10/million doses). |
| TT      | Local reactions- erythema, tenderness and induration are common. Fever, chills and headaches are less common. Rarely, cases of Guillain-Barré Syndrome (GBS) have occurred after vaccine administration. Hypersensitivity reactions may occur with frequent vaccination. |
| MR      | Fever >39.4°C develops in 5-15% of vaccines, transient rashes appear in 1-16% of the vaccine recipients. 1/1 million recipients develop encephalitis. Also, 1/24,000 recipients develop a transient thrombocytopenia. About 5% of the recipients experience joint pains, stiff neck or lymphadenopathy. Anaphylaxis occurs rarely. |
| Hib     | Local pain, swelling and erythema occur at a rate of 10-25%. No serious events have been reported. |
| Hepatitis B | Side effects are transient and minor-pain at the injection site (5-15%), fever (2-3% - usually low grade), nausea, dizziness, malaise, myalgia and arthralgia. Anaphylaxis is uncommon and occurs at an estimated rate of 1/600,000. Although various events (demyelinating diseases, Guillain-Barré syndrome, arthritis, and sudden infant death syndrome) have been reported, there is inadequate evidence to either accepts or rejects the possibility that they are caused by hepatitis B vaccination. |
### BCG

Reactions at the injection site are expected and indicate successful vaccination: erythema, papule/pustule formation and ulceration. Suppurative adenitis is rare, occurring in 0.2-4.0 vaccine recipients per 1,000. Disseminated BCG infection occurs in 1/1 million doses and usually in immunocompromised individuals. Keloid formation may occur if injection given in improper site.

### HPV

Reactions including pain, redness, swelling at the injection site with fatigue, myalgia and fever are all reported as very common reactions (≥1/10 doses given) after the HPV vaccine

<table>
<thead>
<tr>
<th>Side Effect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very common</td>
<td>Headache, aching muscles, muscle tenderness or weakness, not caused by exercise, fatigue.</td>
</tr>
<tr>
<td>Common</td>
<td>Gastrointestinal including nausea, vomiting, diarrhoea and abdominal pain, itching, red skin rash, hives, joint pain, fever (≥37.5°C - ≤38°C).</td>
</tr>
<tr>
<td>Uncommon</td>
<td>Upper respiratory tract infection, swollen glands in the neck, armpit or groin, dizziness, other injection site reactions including hard lump, loss of feeling, especially pain, during a medical procedure, itching, flu-like symptoms, such as high temperature, sore throat, runny nose, cough and chills.</td>
</tr>
<tr>
<td>Rare</td>
<td>Spinning sensation, muscular weakness, generally feeling unwell</td>
</tr>
</tbody>
</table>

### Pneumococcal

Very common (these may occur in 1 in 10 doses or more of the vaccine):

- Pain, redness and swelling at the injection site
- Fever (38°C or higher)
- Drowsiness
- Irritability
- Loss of appetite.

Uncommon (these may occur in up to 1 in 100 doses of the vaccine):

- Blood clot, bleeding and small lump at the injection site
- Diarrhoea
- Vomiting
- Unusual crying
- Temporarily stopping breathing (apnoea).

Rare (these may occur in up to 1 in 1,000 doses of the vaccine):

- Allergic reactions, such as skin rash or hives
- Fits without fever or due to fever
- Collapse (sudden onset of muscle floppiness), periods of unconsciousness or lack of awareness, and paleness.

### Rotavirus

The most commonly reported side-effects are:

- Loss of appetite, irritability, fever, fatigue, diarrhoea, vomiting, regurgitation of food, flatulence, abdominal pain, crying, disturbed sleep, sleepiness and constipation.

Rarely reported side-effects are:

- Chest infection, hoarseness, runny nose, dermatitis, rash and muscle cramp.

Side effects that occurred rarely during routine use of ROTARIX include:

- Intussusception (part of the intestine gets blocked or twisted). The signs may include severe stomach pain, persistent vomiting, blood in stools, a swollen belly and/or high fever, blood in stools, children with a rare inherited illness called Severe Combined Immunodeficiency (SCID) may have an inflamed stomach or gut (gastroenteritis) and pass the vaccine virus in their stools. The signs of gastroenteritis may include feeling sick, being sick, stomach cramps or diarrhoea.
## Adverse Events Following Immunisation (AEFI) Report Form

<table>
<thead>
<tr>
<th>Family name:</th>
<th>First name:</th>
<th>Date of birth (d/m/y):</th>
<th>National Health Number:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Address:</th>
<th>Sex: Male</th>
<th>Ethnicity:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Division:</th>
<th>Sub-Division:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Contact Phone Number:</th>
<th>Reporter Name (health worker):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Treating Health Facility:</th>
<th>Vaccination Location:</th>
</tr>
</thead>
</table>

### Vaccine(s) given* | Route | Site | Lot/Batch number | Expiry date |
|---------------------|-------|------|-----------------|------------|

**Diluents Used:**

*name and dose number e.g. DPT-2, OPV-2; diluent too, if reconstituted

<table>
<thead>
<tr>
<th>Date immunised</th>
<th>Date AEFI started</th>
<th>Onset interval</th>
<th>Date of report</th>
</tr>
</thead>
</table>

Tick box(es) and describe event:

- Anaphylaxis
- Sepsis or shock
- Swollen face or body
- Wheezing or shortness of breath
- Nausea or vomiting
- Rash or hives
- Abscess at injection site
- Sore or red injection site >3 days
- Other AEFI (details):

Past medical history (including history of similar reaction or other allergies) and any other relevant information (e.g. other cases):

<table>
<thead>
<tr>
<th>Recovered: Yes</th>
<th>No</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalized: Yes</td>
<td>No</td>
<td>Unknown</td>
</tr>
<tr>
<td>Died: Yes</td>
<td>No</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Receiving Officer to complete (SDHS/ National EPI Coordinator):

- Date report received: / / 
- Checked by: 

Investigation needed: Yes No Unknown

If yes, date started: 

Investigator: AEFI investigation ID:

Causality assessment: Certainty:

---

Person completing this form: Please fill in all details and send the form to your SDHS as soon as possible.

SDHS: Please forward a copy of this form to the National EPI Coordinator as soon as possible.