TE MARAE ORA
COOK ISLANDS Ministry of Health

NATIONAL IMMUNIZATION POLICY

COMMUNITY HEALTH SERVICES
NOVEMBER 2012

This policy informs Health Practitioners how to immunize, according to the Cook Islands National Policy.

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SECTION 1

IMMUNIZATION GOAL

To improve child survival and health by controlling or eliminating targeted vaccine preventable diseases in the National Immunization Programme (NIP)

IMMUNIZATION OBJECTIVES

- To immunize all infants and children against the following eleven (11) diseases: tuberculosis, hepatitis B, poliomyelitis, diphtheria, tetanus, pertussis, haemophilus influenza type b (Hib), Mumps, measles and Rubella, Human Papilloma Virus.

- To provide vaccines in the NIP free of charge for the target population.

- To provide safe immunization using vaccines that have been stored and transported at the recommended temperature and are correctly prepared and administered.

- To introduce new vaccines, as appropriate based on assessment of disease burden, cost-effectiveness, and affordability.

- To be able to treat urgently for any adverse reactions following immunization.

IMMUNIZATION SCHEDULE

1. INFANTS AND CHILDREN

AGE	VACCINE
Birth	Hep B1, BCG
6 weeks	OPVI, PENTAVALENT1:-(DPT,Hib,Hep B2)
3 months	OPV2,PENTAVALENT2:-(DPT,Hib,HepB3)
5 months	OPV3,PENTAVALENT3:- (DPT,Hib,HepB4)
15 months	MMR1:- (Measles-Mumps-Rubella)
4 years	MMR2, DPT 4, OPV4
9 years	HPV x 3 doses
11 years	TT

First dose of Hepatitis B vaccine is to be administered within 24 hours of birth and the second dose within 6 weeks of birth.

VACCINATION DOSES AND SITES

VACCINE	DOSAGE	SITE	METHOD
Hepatitis B	0.5 ml	Left outer part of thigh	Intramuscular
BCG	0.05 ml	Right upper arm	Intradermal
PENTAVALENT	0.5 ml	Left or right upper outer thigh	Intramuscular
OPV	2 drops	Oral	Oral
MMR	0.5 ml	Left upper outer arm	Subcutaneous
DPT	0.5 ml	Right upper outer arm	Intramuscular
HPV	0.5mls	Left or Right upper outer arm	Intramuscular
TT	0.5 ml	Left or right upper outer arm	Intramuscular

1. CATCH UP SCHEDULE

If immunization record is not completed, all vaccinations should be given as soon as possible. There is no need to start the whole schedule again if some vaccines have already been given. For children that have already started their schedule, but miss doses, start at the next due dose.

Pentavalent1, Polio 1,	at first visit
Pentavalent 2, Polio 2,	at least 4 weeks after the first dose
Pentavalent3, Polio 3,	at least 4 weeks after the second dose
Measles Mumps Rubella (MMR) 1	at first visit (for children over 15 months)
Measles Mumps Rubella (MMR) 2	at 4 years

NOTE: (DPT VACCINE CANNOT BE GIVEN TO CHILDREN ABOVE 7 YEARS OF AGE).

2. CONTRAINDICATION – HIV

BCG should not be given to children with symptomatic HIV infection (i.e. AIDS). All other vaccines can be given to children with either asymptomatic or symptomatic HIV infection.

3. VACCINE ADMINISTRATION

An auto disable (AD) syringe and AD BCG Syringes should be used for all vaccinations. The needle should not be recapped, nor syringes and needles ever separated. Used injection equipment is to be placed in a safety box and destroyed by incinerator.

- Reconstituted vaccines MMR 1 dose, and the BCG 20 doses vials must be kept cool and protected from light and discarded at the end of 6 hours. **The vaccine and the diluents must be from the same manufacturer.**

- BCG diluents 1ml: BCG diluent sodium chloride

- MMR diluents 0.5mls: MMR diluent sterile water

- Discard all open multi dose vials of OPV, DPT, TT and Hep B vaccines after 4 weeks.
- All EPI vaccines are given at the same time without affecting safety or efficacy. The vaccines should not be mixed in the same syringe and must be given in a separate site.

- All Health Practitioners who routinely administers vaccines should be up skilled annually.

4. CONTRAINDICATIONS

- Mild illness or fever is not a contraindication to immunization. However, a child who is very unwell, or who has a high fever (>38.5°C) should not be immunized.

- A child with previous anaphylactic reactions to a vaccine should not receive that vaccine.

VACCINE PROCUREMENT AND MANAGEMENT

- Vaccine procurement is the responsibility of the Procurement Pharmacist. Vaccine requirements are to be estimated annually. All vaccines are to be procured through UNICEF or from WHO pre-qualified suppliers for that vaccine.

- A vaccine arrival report (UNICEF format) is to be completed for all international vaccine arrivals, and a decision made by the Procurement Pharmacist to the quality of the vaccine before use in the Cook Islands.

- Vaccines are to be protected from thermal damage during storage and transportation (condition of ice packs, monitoring and adjustment of cold chain equipment temperatures). Vaccine storage temperatures are to be monitored twice a day (morning and afternoon) and records kept for 12 month.

- Vaccines are to be transported from over seas by air freight.

- Cold chain equipment is to be procured according to WHO/UNICEF standards. A national cold chain equipment inventory is to be kept that specifies: location, model and power source, working condition, age and expected future life. This information is to be reviewed and update annually, and use to plan for equipment placement, maintenance and long-term replacement.

MONITORING AND PERFORMANCE INDICATORS

- All immunizations are to be recorded on the child' s health card in the clinic and school, Baby Book, Immunization Register Book and MedTech. Data on immunizations administered is to be collated and reported monthly to the national level.

- At all sites where vaccines are administered, target populations should be calculated based on birth registrations and census by the public health nurses. Immunization coverage should be reviewed monthly for all antigens, and children that have missed vaccinations should be identified for immediate follow up.

- The National EPI coordinator sets the denominator used at the national level based on birth registrations and monthly reports from public health nurses.

- **Performance indicators and targets**

(1) Coverage

- Birth dose of Hepatitis B within 24 hours (95%)
- Second dose of Hepatitis B within 6 weeks (90%)
- Fully immunized children by the age of 2 year (90 %)
- Two doses of MMR by the age of 4 years (MMR1- 90% and MMR 2- 90%)
- Numbers of vaccination location sites submitting completed monthly reports on time every 6th day of the month (100%).

(2) Vaccine Management

- Vaccine outages at the national level (0% for all antigens)
- Number of doses of vaccine used (administered plus wastage) is within +/- 25% of the estimated vaccine requirements (100% for each vaccine).
- Vaccine wastage of Hepatitis B (25% or less)
- Vaccine arrival reports for international shipments (100%)
- Number of times monthly reports indicate that cold chain equipment is working at each site for the full month (12 months per year for each site).
- Number of days per year cold chain equipment temperature outside recommended range. (less than 12 days per years)

(3) Immunization Safety

- Number of reported AEFI' s that are investigated and classified (100%)

SECTION 2

WHAT A VACCINATOR NEEDS TO DO

CHECK LIST OF ACTIVITIES

1. Before vaccination: Obtain Consent Forms

Consent form is given to parents or care givers for signage and consent, Public Health Nurses must obtain individual consent forms for verification of those children prior to receiving immunization.

2. Immunization Session

© Plan for the immunization session

© Calculate vaccine supplies needed, especially for outreach session

© Keep vaccines at right temperature (+2°C to +8°C)

© Check the child' s name, gender, date of birth and address, and history of medical conditions and allergies

© Check what vaccines the child needs according to the child health card or the immunizations register book, baby book and Med Tech.

© Double checking of the vaccine and diluents for expiry date, manufacturer, batch number, VVM, with health practitioner before going out in the district.

© Prepare the vaccines.

3. Vaccinating

© Give the right vaccine, dose, route, site, to the right person and age according to the schedule.

4. After vaccinating

© Discard used injection equipment safely.

© Record the immunization/vaccine, manufacturer of the vaccine and diluent, expiry date and the batch number given, on the child health card, immunization register, baby book and Med tech.

© Inform the mother when to come back for the next immunization

and to bring their Baby Book.

© Inform the mother about the vaccine, likely reactions and management

5. After the session

© Report the immunization every month

© Review coverage progress and identify problems

© Plan strategies to immunize children who have missed out

© Make referrals for children that have transferred out of the district

© Make enquiries about children with suspected EPI diseases

Document and report promptly by phone to the EPI Manager

VACCINES GIVEN TO CHILDREN

Age given	BCG	Hep B	Pentavalent (Hib,DPT, Hep B),	OPV	MMR	HPV			D.P.T.	TT
Birth	✓	✓								
6 weeks			✓	✓						
3 month			✓	✓						
5 month			✓	✓						
15month					✓					
4 years				✓	✓				✓	
9 years						1	2	3		
						✓	✓	✓		

11 years								✓
Where given	Right upper arm	Left upper outer thigh	Left upper outer thigh	Oral	Left upper arm	Left or Right upper arm	Right upper arm	Left or right upper arm
How given	Intradermal	IM	IM	Oral	SC	IM	IM	IM
Dose	0.05ml	0.5ml	0.5ml	2 drops	0.5ml	0.5ml	0.5ml	0.5ml
Type	Live virus Powder+ Diluent	Inactivated Ready to use	Inactivated ready to use	Live virus Vial with dropper	Live virus Powder + Powder+ Diluent	Inactivated ready to use	Inactivated Ready to use	Inactivated Ready to use
Appearance	White, cloudy liquid	White, cloudy liquid	White cloudy liquid	Clear, pink or orange liquid	Clear, slightly orange liquid	Clear liquid	White, cloudy liquid	White, cloudy liquid

- **BCG and Hep B should be given within 24 hours of birth. If not given at the time of birth, it should be given as soon as possible in the first week of life.**

HOW TO GIVE VACCINES SAFELY

NB: ***You Do Not need to:***

- inject air into a vial before withdrawing vaccine
- or to draw back the piston to check for blood

HOW TO GIVE AN INJECTION

1. Wash skin that looks dirty with soap and water. It is not necessary to swab clean skin with alcohol or disinfectant.
2. Hold syringe barrel between thumb, index, and middle fingers. **Do not touch the needle.**
3. Insert needle with a smooth action.
4. Use thumb to push the plunger without moving the syringe around.
5. Pull needle out quickly and smoothly (less painful than doing it slowly).
6. Ask the parent or care giver to press the site **gently** with a clean swab for a few seconds to stop bleeding and relive pain.
7. Do **not** rub the area where the injection was given.
8. Do not apply ice cold or hot water, vicks, oil or any products to the injection site.
9. Ask parent or care giver to wait for 15-20 minutes for observation of AEFI if any

Hep B VACCINE: INTRAMUSCULAR (IM) INJECTION IN /LEFT UPPER OUTER THIGH.

1. Position the child sideways on the parent' s lap with his or her whole leg bare.

2. The child' s left arm should be tucked around the parent' s body.

3. One of the parent' s arms should be tucked around the child supporting his or her head and holding the right arm.

4. The parent' s other hand should hold the child' s legs.

5. Gently stretch the skin flat between your thumb and forefinger of the middle third of the thigh.

6. Quickly push the entire needle straight down through the skin and into the muscle.

7. Do **not** rub the area where the injection was given.

8. Do not apply ice cold or hot water, vicks or oil or any products to injection site

BCG VACCINE: INTRADERMAL (ID) INJECTION IN RIGHT UPPER ARM.

The injection is given into the skin in the **right upper arm.**

1. Position child sideways on mother' s lap and remove clothing from the arm and shoulder.

2. The mother should hold the child close to her body, supporting his or her head and holding the arms close to the body.

3. Hold the syringe in your right hand with the level of the needle facing upwards.

4. Stretch the skin out flat with your left thumb and forefinger.

5. Lay the syringe and needle almost flat along the child' s skin with the eye of the needle facing upwards.

6. Insert the tip of the needle just under the skin – just past the level (the eye of the needle)

7. Keep the needle FLAT along the skin, so that it goes into the top layer of the skin only. Keep the bevels of the needle facing up.

8. Do not push too far and does not point down or the needle will go under the skin and an abscess or enlarged glands may result.

9. To hold the needle in position, put your left thumb on the lower end of the syringe near the needle, but do not touch the needle.

10. Hold the plunger end of the syringe between the index and middle fingers of your right hand. Press the plunger in slowly with your right thumb. If done correctly, a small pale lump should form in the skin.

PENTAVALENT VACCINE: INTRAMUSCULAR (IM) INJECTION IN LEFT UPPER THIGH

1. Position the child sideways on the parent' s lap with his or her whole leg bare.

2. The child' s left arm should be tucked around the parent' s body.

3. One of the parent' s arms should be tucked around the child supporting his or her head and holding the right arm.

4. The parent' s other hand should hold the child' s legs.

5. Gently stretch the skin flat between your thumb and forefinger of the middle third of the thigh.

6. Quickly push the entire needle straight down through the skin and into the muscle.

7. Do **not** rub the area where the injection was given.

8. Do not apply ice cold or hot water, vicks or oil or any products to injection site

ORAL POLIO VACCINE: DROPS BY MOUTH AMINISTRATION

1. Ask the parent to hold the child with the head supported and tilted slightly back.

2. Open the child' s mouth gently, either with your thumb on the chin (for small infants) or by squeezing the child' s cheeks gently between your fingers.

3. Let 2 drops of vaccine fall from the dropper onto the tongue. Do not let the dropper touch the child' s mouth.

4. All OPV drops can be given either before or after the injection.

MMR VACCINE: SUBCUTANEOUS (SC) INJECTION IN LEFT UPPER ARM

The injection is given into the skin in the **left upper arm.**

1. Position child sideways on parent' s lap with the whole arm bare.

2. The right arm should be tucked around the parent' s body.

3. One of the parent' s arms should be tucked around the child supporting his or her head and holding the left arm that is to receive the injection.

4. The parent' s other hand should hold the child' s legs.

5. Hold the top of the child' s arm from underneath. Reach your fingers around and pinch up the skin.

6. Quickly push the needle into the pinched up skin – the needle should point towards the shoulder.

7. To control the needle, support the end of the syringe with your thumb and forefinger but **do not touch the needle.**

8. Do **not** rub the area where the injection was given.

9. Do not apply ice cold or hot water, vicks or oil or any products to the injection site.

DPT VACCINE: (IM) INTRAMUSCULAR – LEFT UPPER ARM

1. Ask the child or woman to sit down

2. Tell them to drop their shoulder and place their left hand behind their back or resting on the hip. This relaxes the muscle in the arm and makes the injection nearly painless.

3. Put your finger and thumb on the OUTER part of the upper arm.

4. Use your left hand to squeeze up the muscle of the arm.

5. Quickly push the needle straight down through the skin between your fingers. Go deep into the muscle.

6. Press the plunger with your thumb to inject the vaccine.

7. Pull out the needle quickly and smoothly and ask the child/woman to press the site gently with a cotton pad in case of bleeding and also because gentle pressure relieves pain.

8. Do not apply ice cold or hot water, vicks or oil or any products to the injection site.

TT VACCINE 11 YEARS: INTRAMUSCULAR INJECTION

Tetanus vaccine (TT) is given into the **left or right upper arm** to children 11 years with no or an incomplete history of tetanus immunization.

1. Ask the child to sit down

2. Tell them to drop their shoulder and place their left hand behind their back or resting on the hip. This relaxes the muscle in the arm and makes the injection nearly painless.

3. Put your finger and thumb on the OUTER part of the upper arm.

4. Use your left hand to squeeze up the muscle of the arm.

5. Quickly push the needle straight down through the skin between your fingers. Go deep into the muscle.

6. Press the plunger with your thumb to inject the vaccine.

7. Pull out the needle quickly and smoothly and ask the child to press the site gently with a cotton pad in case of bleeding and also because gentle pressure relieves pain.

8. Do not apply ice cold or hot water, vicks or oil or any products to the injection site.

HPV VACCINE 9 YEARS (Girls only): INTRAMUSCULAR INJECTION

HPV vaccine is given into the **left or right upper arm** to girls of 9 years.

1. Ask the child to sit down

2. Tell them to drop their shoulder and place their left hand behind their back or resting on the hip. This relaxes the muscle in the arm and makes the injection nearly painless.

3. Put your finger and thumb on the OUTER part of the upper arm.

4. Use your left hand to squeeze up the muscle of the arm.

5. Quickly push the needle straight down through the skin between your fingers. Go deep into the muscle.

6. Press the plunger with your thumb to inject the vaccine.

7. Pull out the needle quickly and smoothly and ask the child to press the site gently with a cotton pad in case of bleeding and also because gentle pressure relieves pain.

8. Do not apply ice cold or hot water, vicks or oil or any products to the injection site.

MORE THAN ONE INJECTION AT THE SAME VISIT

All the different EPI vaccines are safe and effective when given at the same time. For example, a child aged 1 year who has never been immunized can receive at one time

1. BCG in right arm
2. Pentavalent in the left or right thigh
3. OPV1 (orally)

1. Prepare all injections (so they can be given one after other) **Do not mix different vaccines in one syringe.**
2. Give injections, as needed, in this order:

- BCG
- MMR
- Pentavalent

3. Give OPV before or after injections.

USE AUTO – DISABLE SYRINGES (AD)

There are several types of auto-disable syringes (Ads). They can only be used one time because the plunger cannot be retracted once it has been pushed in. Auto-disable syringes should be discarded in a safety box together with other syringes, needles and sharps (vials & ampoules).

You do need to:

- throw the needle cap and piston cap in the safety box – **do not recap the needle**
- do not touch the tip of the needle or let it touch any surface
- dispose of syringe and needle into the safety box immediately after use

BEFORE IMMUNIZING

CHECK WHAT VACCINES THE CHILD REQUIRE

Look at the child' s health immunization card, immunization register book, baby book and Med Tech.

1. Identify which vaccine series have not been completed.

2. Mark the vaccines, only if you are certain they have been given.

3. Give all vaccines due. If more than one type of vaccine is needed, they may all be given at the same time.

4. Doses of the same vaccine must be at least four weeks apart.

CHECK THE VACCINE

1. Is this the correct vaccine for the child?

2. Is the vial/ampoule in good condition?

- Discard damaged vials/ampoules and those with no label

3. Check the label, to see that:

a. the expiry date has not passed

b. Vaccine vial monitor (VVM), if present (see below)

- Discard vaccine if past expiry date or if VVM past ' discarding point'

4. Look at vaccine – check for colour and particles

- Discard vaccine with any change in appearance or presence of particles and lumps that will not dissolve
- All discarded vaccines must be returned to pharmacy

EXPLAIN TO MOTHER ABOUT THE VACCINE, LIKELY REACTIONS AND TREATMENT

1. Explain to the mother what disease(s) the vaccine(s) protects from

2. Reassure the mother that reactions are common and show that the child is responding well to the vaccine

3. Advise treatment for fever, pain/swelling at injection site

a. Give extra fluids e.g. more breastfeeds or water for babies over 6 months
b. Paracetamol may be given depending on age but not recommended
c. Extra hugs and attention – but keep pressure off the area (s)
d. No ice cold cloth on the injection site, it may interfere the efficacy of the vaccines

4. Tell mother to bring child to hospital if reaction continues for more than a day if it is more serious.

PREPARATION OF THE VACCINES

Always start by washing your hands with water and soap and dry them well with a clean cloth or Sanitizer

TO DRAW UP VACCINE FROM A VIAL

1. Shake the vial to mix the contents. **Do not touch the rubber top.**

2. Insert the needle and turn the vial upside down. **Do not touch the needle.**

3. Gently pull the plunger to full the syringe just over the 0.5 ml mark (to be able to remove the air).

4. With the needle still in the vial pointing upwards, tap the syringe to bring any air bubbles to the top of the syringe.

5. Gently push the piston to remove air and excess vaccine from the syringe.

6. Stop exactly at the 0.5 ml mark.

TO RECONSTITUTE BCG AND MMR MEASLES MUMPS RUBELLA VACCINES

The diluent for reconstituting BCG and measles, mumps and rubella vaccines comes in ampoules, bottles, or plastic tubes. Cool the diluent to the same temperature as the vaccine before mixing or keep the diluent with vaccine in the vaccine carrier.

1. Check that the diluent matches the vaccine: from the same manufacturer.

2. Draw up amount of diluent required into mixing syringe.

3. Inject all the diluent into the vial.

4. Gently tip (do not shake) vial back and forth between your fingers to mix the vaccine and diluent until there is no powder seen at the bottom of the vial.

5. Place used mixing syringe and needle into the safety box. Do not leave mixing needle in vial.

Keep reconstituted vaccine cool between + 2 to +8 degrees Celsius and away from sunlight. Discard reconstituted vaccines within six hours or at the end of the session, whichever comes sooner.

Note: Reconstitute vaccine also when you only have one or few children to immunize. Do not delay immunization in order to save vaccines. Do not reconstitute vaccine until the child is ready for immunization.

PLAN OUTREACH IMMUNIZATION SESSION

1. Inform Child Welfare Committee and parents of the date, time and site of the immunization session.

2. Arrange how to get to the outreach site.

3. Check from the register book and Med Tech the list of children for immunization and the number of target children.
4. Work with the village health volunteers Cook Islands Child Welfare Association (CICWA) to make sure that all the children turn up.

5. Check materials, equipment and vaccines.

- Vaccine carrier and vaccine
- AD syringes – 0.5 ml and 0.05 ml (and size 23 and 25G needles, if not attached to syringes)
- Reconstitutions syringes with needles – 5 ml and 2 ml.
- Safety boxes.
- Immunization register book for children and family folder.
- Immunization Information Booklet.

6. Arrange the immunization site and waiting area, ensuring that site is suitable and with everything needed within reach.

7. After the session:

- Pack any unopened vaccines, together with any opened vials of TT, DTP,OPV **with good VVM and that has not been contaminated** (dirty syringe or submerged in water), back in the cold box.
- Collect used materials to return to health centre
- Thank the local people who have helped organize the session and remind them when you will return

8. At the Health Centre:

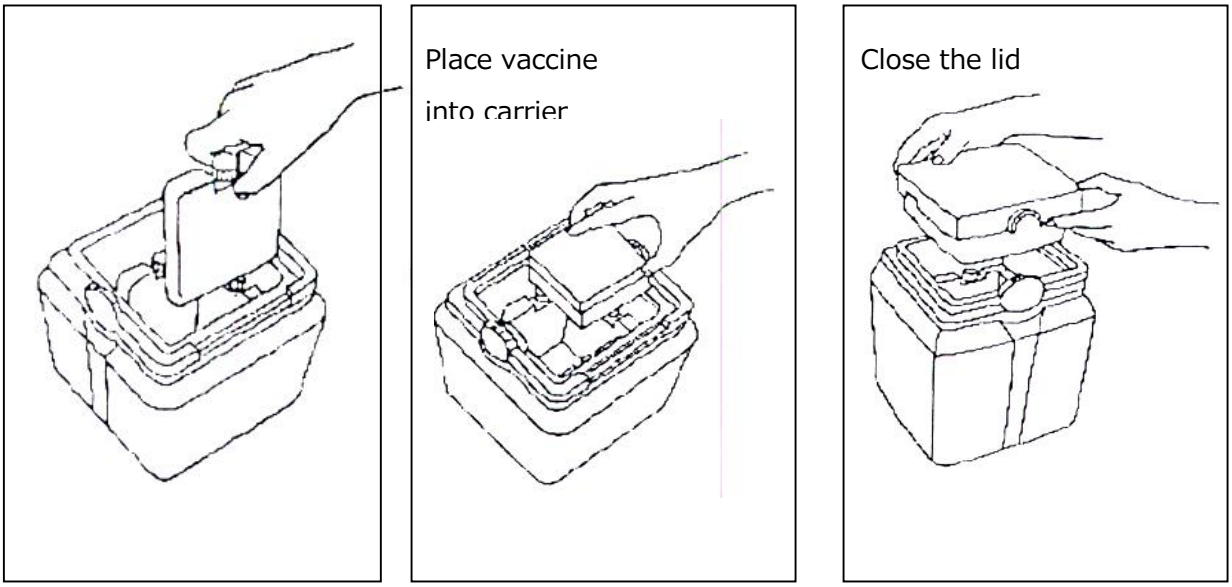
- If the ice packs/wet ice is still frozen, put unopened vials in the " returned" box in the refrigerator so they will be used first during the next session.
- If the ice in the ice packs has melted, discard all vaccines EXCEPT for any in vials carrying VVMs that are not past discard point. Return these vaccines to the refrigerator for use during the next session.
- Put ice packs from carrier into the freezer and check and record the temperature of the vaccine fridge.

KEEP VACCINES AT THE RIGHT TEMPERATURE

Vaccines must be stored at the right temperature (+2ºC to + 8ºC). To keep vaccines cold during outreach sessions, special boxes are used called vaccine carrier. The temperature inside the box is kept cold by ice packs.

A foam pad fits on top of the ice packs in a vaccine carrier. When the carrier lid is open, the foam pad keeps the vaccines inside cold.

HOW TO LOAD A VACCINE CARRIER



1. Remove ice packs from freezer and let them sit at room temperature for about 30 minutes before drying them and placing them in vaccine carrier.

2. Place the ice packs along each side of the vaccine carrier.

3. Place OPV, measles/mumps/rubella vaccine and BCG at the bottom of the vaccine carrier.

4. Place Pentavalent, DTP and TT at the top of the vaccine carrier. Do not let vials touch the ice packs. Place cardboard around ice pack to protect vaccine from freezing.

5. Make sure that the vaccine carrier is tightly shut.

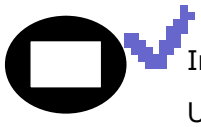
MULTI DOSE VIAL POLICY

Multi dose vials of OPV, DPT, TT and Hep B vaccines can be used for up to 4 weeks, provided that all the following is fulfilled:

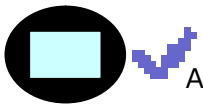
- The expiry date has not passed
- Vaccines are stored in a vaccine fridge and kept at the appropriate temperature
- Aseptic technique has been used to withdraw all doses
- The VVM, if attached, has not changed color enough to be discarded
- The punctured vial septum has not been submerged in water (ice water etc.)
- Date of first opening must be specified on the label

HOW TO USE THE VACCINE VIAL MONITOR

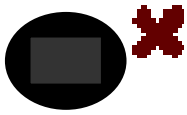
The vaccine vial monitor (VVM) allows health workers to check whether the vaccine has been damaged by heat. The VVM gradually changes colour with heat and gives an indication when the vaccine should not be used.



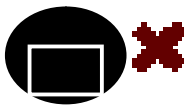
Inner square is lighter than outer ring.
USE the vaccine if expiry date not reached



As time passes inner square is lighter than outer ring.
USE the vaccine if expiry date not reached



Discard point: Inner square matches the color of outer ring.
DO NOT use the vaccine



Beyond the discard point: Inner square is darker than outer ring.
DO NOT use the vaccine

DISCARD USED INJECTION EQUIPMENT SAFELY

1. Prepare the safety box and place it within reach in the area where you are immunizing

2. Place needle cap in the safety box. Needles should never be recapped

3. Place the syringe and needle directly into the safety box after immunizing

4. Fill the safety box to about ¾ full – a safety box can hold about 150 used AD syringes

5. When the safety box filled, close the lid and seal the box

6. Return the safety box to the health centre for destruction

RECORD IMMUNIZATION GIVEN

The immunization should not be recorded until after it has been given:

1. Complete the child' s health immunization card, immunization register book, baby book and Med tech by recording the date for each vaccine.

2. Remind the mother to keep the baby book in a safe place and always to bring it when going to the health centre (MCHC) or hospital.

ENSURE CHILD RETURNS TO COMPLETE THE IMMUNIZATIONS

1. Tell mother how many more visits needed to protect the child

2. Advise when fully immunized

3. Tell mother the place, and time of next session

4. Answer mother' s concerns and advise on possible reactions and treatment and give mother a handout leaflet

REPORT THE IMMUNIZATIONS

At the end of each month, every health centre should complete and submit an immunization coverage report to the EPI Coordinator and CPHN.

1. Add together the numbers of immunizations given by dose, for:

(a) Children under 2 year of age

(b) Children over 2 year of age

2. Fill in a monthly immunization report form

3. Give a copy of the report to your supervisor by the due date

4. Use the numbers to complete immunizations monitoring charts

5. Include any child in the register book that has moved in to your area and report the child' s name, date of birth, address and the parents name to the Public Health Nurse of the area.

THE IMMUNIZATION REGISTRY

The National Immunization Programme has been computerized in Med Tech since 2010. With the new registry it has been possible to keep records of individual child. The purpose of the registry is to improve coverage further by identifying children that have not been immunized in time. Children will be entered in the registry in three ways, through information in the child' s birth certificate and by report from the Public Health Nurses providing immunization and Med Tech. Each Public Health Nurse of the area will provide regular print-outs of the registered children in their district or a village with information on required immunization.

Because of migration, transfer to other areas, or outer islands and those from over seas it is important that the registry is regularly checked against the children in your area. If you find that you have new unregistered children in your area then you should register in your own area but inform Hospital receptionist to change or join register.

REVIEW COVERAGE PROGRESS & PROBLEMS

1. Identify problems by talking with Child Welfare members, parents and other health practitioners.
2. Plot coverage to check the percentage of people immunized and how the number of immunizations given compares with targets

3. Check the register of names to see who is missing out on their immunizations

4. Follow up and up to date their immunization and coverage

PLAN STRATEGIES FOR THOSE MISSING OUT

1. Identify the target population = the number of infants born the previous year

2. Estimate number missing out = target – DPT 3

3. Using the health centre map, identify the locations and reasons for children not being fully immunized

4. Develop strategies and plan activities to ensure these children are reached – consider

- Increasing people' s knowledge about immunization
- Changing hours of immunization sessions so more convenient
- Involving community health practitioners in solving transport problems
- Remind parents or asking CICWA to remind parents that have not brought their children for immunization

5. Monitor progress in reaching these children using coverage monitoring chart.

SEARCH FOR CHILDREN WITH EPI DISEASES

Ask in the village if there have been any cases of:

- Acute flaccid paralysis
- Fever and Rash (measles or rubella)
- Neonatal/maternal tetanus
- Pertussis

If you suspect a case of EPI diseases you should:

1. Ask to see the child and document the history. The history should include the date of onset, symptoms and signs of illness and immunization history.

2. Enquire about other cases in the family and in the community.

3. Find out if the child has traveled to other villages in Rarotonga or abroad.

4. Report the case to the EPI Manager/CPHN immediately. It is important that you report the case even if the mother tells you that she has already taken the child to the hospital or to see a doctor.

USING CHART TO MONITOR IMMUNIZATION COVERAGE

A monitoring chart which shows doses administered and dropout rates is a simple and effective tool for monitoring progress. The monitoring chart:

- graphically shows doses given compared to the number of infants eligible to receive them;
- Graphically shows dropout rates, by comparing the number of infants that started receiving immunizations to the number of infants who received all needed doses of vaccines.

Every health facility should display a current monitoring chart on the wall, where it can be seen by all staff every day. This chart can be used at every level, national, and health center. The principles are the same.

How to prepare the chart for monitoring doses administered and dropouts in infants less than two years of age.

This chart has been developed to track the monthly progress you are making towards immunizing infants less than two years of age each month and throughout the year. It also helps you to determine whether your target population is completing the series of vaccines (e.g. Pentavalent 1 & 3) or dropping out.

1. Calculate the annual and monthly target population to receive immunization services.

a) *Annual target population*

You should aim to reach every infant in your district area, especially those who are hard to reach. Use existing population figures for infants under one year of age obtained from official census data or your own community census. If you do not have these numbers, obtain an estimate by multiplying the total population times 4%. If you have a more precise percentage for your country or region, use this number instead (If the total population is 3900 then infants under one year would be 3900 x 4/100 = 156).

b) *Monthly target*

To get a monthly target population, divide the number of infants under one year of age by 12 (If annual target under one year is 156, monthly target is 156/12 = 13).

2. Label the chart

Complete the information on the top of the chart, i.e. area and year. Label the left and right side of the chart with the monthly target figures. Label the boxes at the bottom with the name of the vaccine and dose, e.g. Pentavalent, measles, mumps/Rubella or Pentavalent 1 and Pentavalent 3, as shown in the example below.

3. Plot immunization data on the chart.

The chart can be used to monitor doses given and dropout rates. The example uses Pentavalent 1 and Pentavalent 3, but other rates can be used (e.g. Pentavalent and MMR)

a) Locate the row of boxes underneath the graph. Locate the spaces for the month you are recording. Enter the monthly total of Pentavalent 1 immunization given.

b) Add the current month' s total to the previous cumulative total to calculate the current cumulative total and enter it on the right side of the month column you are recording.

c) Make a dot on the graph for the cumulative total recorded on the right side of the month column you are recording.

d) Connect the new dot to the previous month' s dot with a straight line.

e) Repeat above (a to d) every month until the end of the year.

f) Plot Pentavalent 3 immunizations given in the same way as Pentavalent 1 (follow steps a to e).

5. To calculate the total number of dropouts between (Pentavalent 1 and Pentavalent 3).

a) Subtract the cumulative total for Pentavalent 3 from the cumulative total for Pentavalent 1.

b) Calculate the cumulative drop out rate (DO%) as follows:

Drop Out %=Pentavalent 1 cumulative total minus Pentavalent 3 cumulative total
Pentavalent 1 cumulative total x 100

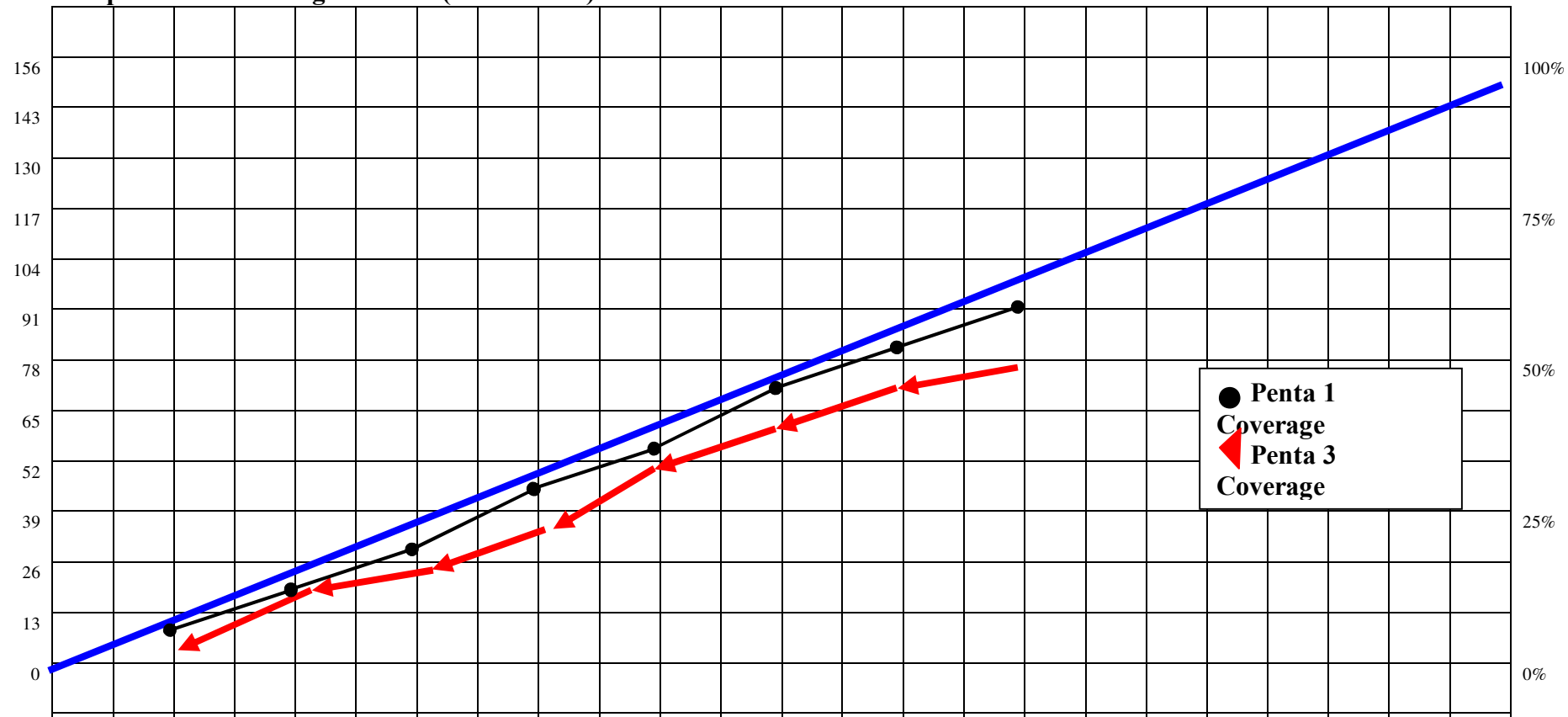
The drop out rate can be easily visually monitored: it is the gap between the line of Pentavalent 1 and of Pentavalent 3.

4.1.2 Suggested charts

- (Pentavalent) Pentavalent 1 and Pentavalent 3.
- DPT 4 and(MMR 2) Measles, Mumps Rubella
- OPV1 and OPV3

Cumulative means the total number of doses of vaccines given in the current month plus the monthly totals for all the previous months. Use the same time period for each dose and vaccine. For example, the cumulative number of Pentavalent 1 doses given by the end of March is the total number of doses given in January plus the total number given in February plus the total number given in March.

Example of a monitoring chart for (Pentavalent) Pentavalent 1 and Pentavalent 3



	JAN	CUM Total	FEB	CUM Total	MAR	CUM Total	APR	CUM Total	MAY	CUM Total	JUN	CUM Total	JUL	CUM Total	AUG	CUM Total	SEP	CUM Total	OCT	CUM Total	NOV	CUM Total	DEC	CUM Total
(P1 Pentava	10	10	12	22	7	29	12	41	14	55	15	70	14	84	7	91	10	101	12	113	3	116	31	147
P3	8	8	9	17	8	25	10	35	11	46	12	58	12	70	7	77	5	82	11	93	14	107	3	110
Drop out number		2		5		4		6		9		12		14		15		19		20		9		37
Drop out %		20		23		14		15		16		17		17		16		20		18		89		25

REFRIGERATOR TEMPERATURE MONITORING

The refrigerator temperature should be checked two times a day (morning and afternoon) to ensure that it is in the safe range +2 to +8 degree celsius.

- **If the temperature is too high (above 8 deg. C):**

1. Make sure that the refrigerator is working.

2. If the refrigerator is working, turn the thermostat knob so that the arrow points to a HIGHER number. This will increase the amount of cooling and make the refrigerator colder.

3. Check the VVMs on the vaccines to see if they have been damaged.

4. If the refrigerator is not working, store vaccine in another place until the refrigerator is repaired.

- **If the temperature is too low (below 2 deg. C):**

1. Turn the thermostat knob so that the arrow points to a LOWER number. This will decrease the amount of cooling and make the refrigerator warmer

2. Check Pentavalent, Hep B, DPT and TT for freezing using the shake test

If adjusting the thermostat still does not make the refrigerator stay between +2 to +8 deg. Celsius, you should contact your supervisor.

CLEANING THE REFRIGERATOR

Clean the refrigerator at least once every three months. Soak a cloth in soap and warm water and use it to clean the interior of the refrigerator and its fittings. Never use detergents, scouring powder, strongly scented products to clean the interior of the refrigerator as they may damage the surfaces. The exterior of the refrigerator should be wiped clean regularly, using damp cloth and a small quantity of detergent. The door seals should be cleaned only with soap and water and then thoroughly dried. The cooling unit behind the refrigerator should be cleaned with a brush to remove any dust.

DEFROSTING

Check the formation of ice in the refrigerator every week and, defrost the refrigerator if 0.5cm thick or more. To defrost the refrigerator, turn it off and remove all items. Do not use any sharp objects to scrape off the ice as this may damage the refrigerator walls. As the ice melts, water from the refrigerator will collect in a container at the back of the refrigerator. When all ice has melted, wipe the refrigerator dry and restart it. If you have to defrost more than once a month, the door seal may be faulty or the door may be being opened too frequently.

PARENTS/PATIENT ADVICE

Any injection may result in soreness, redness, itching, swelling or burning at an injection site for 1 or 2 days. Sometimes a small, hard lump may form some weeks or more, this is no cause for concern.

Common adverse events following immunization and what to do about them?

HEPATITIS B

- Very occasionally soreness, redness at the injection site
- Low grade fever

BCG

- The BCG sore is normal. It develops about two weeks after injection, and remains for about two weeks.
- Do not apply anything on it. It heals by itself and a scar develops.

PENTAVALENT:

No serious side- effects. Common mild side – effects include pain, redness or swelling at injection site and mild fever. All of these should resolve within a few days.

OPV

- Very rarely any adverse event
- Occasionally diarrhea

MMR

- Discomfort at the injection site
- Usually transient and mild

The following may occur 5 to 12 days after vaccination

- Low grade fever
- Faint rash (not infectious)
- Slight fever or runny nose
- Cough or puffy eyes
- Swelling of the salivary glands

DPT

- Usually mild and transient
- Within 24 hours
- Localized pain, redness and swelling at injection site
- Low grade fever
- Irritable, unsettled and generally unhappy – may persist for 24 to 48 hours
- Drowsiness

TT

- Usually mild and transient
- Localized discomfort, redness and swelling at the injection site

HPV

- The most common side effects of vaccination were soreness at injection site, headache and nausea which can be prevented by closely observing the person for 15 minutes after vaccination.

WHAT TO DO

- Give extra fluids to drink
- Continue breastfeeding
- Do not overdress the baby if hot
- Give paracetamol to lower the fever if needed

ADVERSE EVENTS FOLLOWING IMMUNIZATIONS

An adverse event following immunization (AEFI) is any event that happens during or after immunization of a vaccine. Minor reactions, such as fever, local swelling and redness at the site of injection and crying are common with immunizations. Parents should be informed about common reactions verbally at the time of immunization. More serious reactions must be documented and immediately reported to the EPI Manager who will decide if further investigations are required.

Most AEFIs are not caused by vaccines but by other illnesses that would have happened whether the child had been immunized or not. (i.e. just a coincidence). Occasionally, an AEFI is caused by an error in the preparation, handling, or administration of the vaccine. For example, if a vaccine has been prepared with the wrong diluent or has been contaminated by non-sterile handling, it may cause reactions. Such errors can be avoided by following best practice. Some reactions, especially in older children, come from the fear or pain of the injection.

All suspected adverse events from immunization that are seen must be documented in Incident Form and reported to the EPI Manager.

AEFI' s in the Outer Islands should be documented and reported immediately to the Medical Officer In charge or Nurse Practitioner.

AEFIs on Rarotonga should be documented and reported immediately to the Pediatrician and CMO (Chief Medical Officer) followed by the Director of Hospital Services, Director of Community Health Services, Manager Public Health Nurse, Pediatrician, Quality Manager, Chief Nursing Officer and Chief Medical Officer, should be made if the event is likely to be an effect of the immunization (vaccine), programme factors (administration) or coincidental.

ANAPHYLAXIS

Anaphylaxis is VERY RARE.

If Anaphylaxis occurs notify a Pediatrician or Doctor

Adrenaline is the most important Treatment.

Anaphylaxis can occur after immunization or giving other drugs in particular penicillin.

Symptoms are:

- Sweating
- Rash
- Difficulty Breathing
- Swelling of the face, usually around the eyes
- Nausea and Vomiting
- Collapse

MANAGEMENT

Check

A = Airway

B = Breathing

C = Circulation

If anaphylaxis occurs do all of the following:

1. Lay patient down, if possible in a recovery position
2. Give adrenaline IM slowly every 2 mins x 3 doses (Dose 0.01ml/kg)
3. Give hydrocortisone IM (Dose 4mg/kg)
4. Give Phenergan IM (Dose 0.3mg/kg)

NOTE – FOR ADRENALINE USE INSULIN SYRINGE

If shocked do all of the following:

1. Insert IV line
2. Give normal saline or Hartman' s solution 20ml/kg over 15-30 minutes
3. Refer patient – seek advice

QUICK DOSES GUIDE

NOTE – FOR ADRENALINE USE INSULIN SYRINGE

AGE	ADRENALINE 1:1,000	HYDROCORTISONE	PHENERGAN (PROMETHAZINE)	SALINE/ HATMANN' S
1– 3yrs	0.1 ml	100 mg	5 mg	200 ml
4– 7yrs	0.2 ml	200 mg	7.5 mg	300 ml
8– 12yrs	0.3 ml	300 mg	10 mg	400 ml
13yrs +	0.4 ml	400 mg	15 mg	500 ml

ANAPHYLAXIS DRUG DOSES

DRUG	ROUTE	DOSE
Adrenaline	sc	0.01 ml/kg
Hydrocortisone	im	4 mg/kg
Phenergan (Promethazine)	im	0.25 mg/kg

NOTE – FOR ADRENALINE USE INSULIN SYRINGE

Guide to weights:

AGE	WEIGHT (Kg)
2 months	5
4 months	7
6 months	8
1 year	10
2 years	12
3-5 years	15
6-9 years	20
10-12 years	30
13-15 years	45

16 years and over	60

The Anaphylaxis Kit should contain;

- ☐ Adrenaline 1:1000 – 3 vials
- ☐ Hydrocortisone 100mg – 2 vials
- ☐ Phenergan (Promethazine) 25 mg – 1 vial
- ☐ Normal Saline or Hartmann' s Solution – 1 liter
- ☐ Intravenous giving set -1
- ☐ Intravenous, canulae – 24, 22 and 20 gauge – 2 of each
- ☐ Insulin syringes – 3
- ☐ 2ml syringes – 2
- ☐ 5ml syringes – 2
- ☐ Water for Injections 100 ml vial
- ☐ Swab and tapes
- ☐ Oxygen Therapy:
- ☐ Small oxygen cylinder
- ☐ Infants and child' s ambu and mask

This should be checked before every injection or immunization session to ensure everything present and drugs have not expired.

EPI DISEASES & VACCINES

HEPATITIS B

Description: Hepatitis B virus spreads from person through body fluids and sexual contact without condom is an important route of infection. The virus can also spread from mother to child during delivery and breastfeeding. Hepatitis B virus can cause liver cirrhosis and liver cancer many years after the initial infection and infection with hepatitis B virus is the most important cause of liver cancer in the world. Hepatitis B immunization of newborns started in the Cook Islands in 1989.

Vaccine: HBV/Hep B Vaccine. The vaccine used in the Cook Islands is a recombinant DNA vaccine. Children are infected early in life and most transmission is from mother to child during and soon after

delivery. It is therefore very important that the Hepatitis B vaccine is given as soon as possible after birth and every effort should be made to immunize all newborns within 24 hours.

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TUBERCULOSIS (TB)

Description: Tuberculosis is caused by a bacterium, Mycobacterium tuberculosis. The most important route of spread is through inhalation of droplets of pulmonary secretions from a coughing infective person. Close contact is normally required for transmission and the source of infection is likely to be a person within the family when a child is diagnosed with TB. People of all ages can contract TB but young children are more susceptible to infection and they are also at higher risk of developing severe disease, such as TB meningitis (brain infection), TB osteomylitis (bone infection) or disseminated TB (infection in many different parts of the body). Adults with TB infection will usually have a chronic cough but young children often have indistinctive symptoms such as tiredness and failure to thrive.

Vaccine: The **BCG vaccine (Bacillus Calmette Guerin**) is made from an attenuated (weakened) strain of Mycobacterium bovis and was first developed in the early 20th century. BCG is a live vaccine, which means that the weakened bacterium in the vaccine will multiply in the body after immunization and create an immune response. Immunization with BCG protects children particularly against the severe forms of tuberculosis but it will not prevent all cases of tuberculosis in a population.

HAEMOPHILUS INFLUENZA TYPE b (Hib) disease

Description: The haemophilus influenza type b (Hib) can cause pneumonia and meningitis. It mostly affects children under 5 years.

Hib bacteria are more common in the nose and throat. It is transmitted from one person to another in airborne droplets through sneezing, coughing and also when children share toys and other object they put in their mouth.

The signs and symptoms of Hib diseases are the same as those of pneumonia and meningitis such as high fever, nausea, vomiting, lethargy, restlessness, indrawing of chest, stiff neck, coma and convulsion

There are complications of Hib diseases like children who survive Hib meningitis may develop permanent neurological disability, including brain damage, hearing loss and mental retardation and at risk of dying.

PENTAVALENT

The **Pentavalent Vaccine** provides protection against Hib disease, Diphtheria, Tetanus, Pertussis and Hepatitis B. It is a combination of one vaccine.

DIPHTHERIA

Description: DPT Vaccine. Diphtheria is caused by the toxin (toxin=poison) producing Corynebacterium diphtheria bacterium. Transmission is by personal contact through droplets produced by coughing and sneezing. Crowding, poverty and poor access to health care are important risk factors for diphtheria. The typical patient with diphtheria is below 15 years of age and not fully immunized. Symptoms are sore throat, loss of appetite and slight fever. The severity varies with the site of infection and many infections are unapparent resulting in asymptomatic patients carrying and transmitting the infection for long periods. The serious forms include infections in the throat, and tonsils causing swelling that can block the airways. A typical membrane is formed in the throat. Diphtheria can also infect the skin causing painful, red swollen sores not unlike impetigo.

Vaccine: DPT Vaccine The Diphtheria vaccine is a toxoid that is the inactivated toxin produced by the Corynebacterium. When the diphtheria toxin is treated with formaldehyde it loses its ability to bind to cells and will no longer cause disease. The inactivated toxin induces a strong immune response with production of anti-toxin antibodies. The anti-toxin antibodies will protect from the diseases since the mortality from diphtheria is caused by the toxin.

PERTUSSIS (WHOOPING COUGH)

Description: Whooping cough is caused by the Bordetella pertussis bacteria that produce several different toxins. The infection is particularly dangerous for infants because the intensive coughing can interfere with breathing and feeding. The illness starts with a runny nose, red eyes and low-grade fever. A cough develops over several days culminating with frequent episodes of intensive coughing. During severe attacks the face and hands of the baby may turn blue (cyanotic) due to lack of oxygen when the coughing interferes with breathing. Small blood vessels in the outer layer of the eye can break from the intensive coughing causing typical hemorrhages in the eye. Coughing and vomiting is exhaustive and the lack of oxygen can lead to brain damage in severe cases.

Vaccine: DPT vaccine. There are several different kinds of pertussis vaccine but they can be divided into two major groups, whole cell vaccines and acellular vaccines. Both types of vaccines are often combined with diphtheria and tetanus vaccine. The pertussis vaccine used in the Cook Islands is of the whole cell/acellular type and comes in a combination with diphtheria and tetanus vaccines called DPT

TETANUS

Description: Tetanus is caused by another toxin (poison) producing bacteria, Clostridium tetani, that lives in soil. The toxin binds to nerve cells in the spinal cord and the brain making muscles contract involuntary. The muscle spasms interfere with breathing and swallowing and mortality is very high. The site of infection is often a skin lesion. A newborn baby can become infected if the umbilical cord is cut with a contaminated instrument or infected materials are used to dress the cord. This is called neonatal tetanus and symptoms appear three to ten days after birth. The first sign is that the baby is unable to suck because of muscle spasms in the throat and around the mouth. The spasms will increase and eventually involve the entire body and few affected babies survive. Neonatal tetanus can be prevented if mothers are immunized against tetanus before or during pregnancy. Maternal antibodies against the tetanus toxin are then transported over the placenta to the baby during pregnancy and will protect the baby against tetanus until it has been immunized.

Vaccine: Tetanus Toxoid vaccine is a toxoid, the inactivated form of the natural toxin produced by the tetanus bacteria. When the toxin is treated with formaldehyde it is no longer poisonous but it still induces an immune response. Anti-toxin antibodies protect from disease by inactivating the toxin produced by the bacteria. Like diphtheria, the disease tetanus is caused by the toxin produced by the bacteria.

POLIO

Description: The polio virus enters the body by way of contaminated food or drink. Polio can occur in adults but is more common in children. Most people who are infected with poliovirus do not become ill but can still spread the infection. A small proportion of infected people develop a serious form of paralytic polio, where one or both legs and arms are paralyzed. If the paralysis includes the chest wall, it will interfere with breathing and the patient will die if not treated with a respirator. Today, infection with wild polio virus occurs in only a handful of countries in the world and WHO has set 2005 as a target for the elimination of polio. This does not mean that immunization with polio vaccine can stop because there will be virus in our environment still for many years to come. To be able to determine whether polio has been eliminated it is necessary to investigate all cases of possible disease. There are many

illnesses that can look like polio and it is impossible to decide if it is polio without laboratory testing. It is very important that all cases of acute flaccid paralysis are reported to the EPI manager and investigated.

Vaccine: Oral Polio Vaccine. There are two different kinds of polio vaccine, an oral vaccine made from weakened (attenuated) virus and an injectable vaccine made from killed vaccine. The oral vaccine is used in the Cook Islands, as it is in most countries of the world.

MEASLES

Description: Measles is caused by a virus that spreads easily via airborne droplets and through direct contact. Measles is most infectious during the 10-12 days incubation period when the infected person does not yet have symptoms. The first signs are high fever together with cough, runny nose, and red eyes. Small white spots on the inside the cheeks called Koplik' s spots are typical for measles but they are not always seen. A rash consisting of small elevated papules on red skin (maculo-papular rash), sometimes with a hemorrhagic centre, appears 2-4 days after the onset of fever. It starts on the head and spreads to the trunk and extremities. The rash fades in the same order it appeared, often with scaling of the skin. The infection can be complicated with pneumonia and diarrhoea and children with malnutrition are especially at risk of death. One of the goals of the EPI is to eradicate measles from the world. To do that it is very important to report and investigate all cases of fever with rash to establish whether or not it is measles. If you come across a child with fever and rash, you should refer the child to the nearest hospital for testing.

Vaccine: Measles vaccine is a weakened (attenuated) live virus. Reconstituted measles vaccine is sensitive to heat. Maternal antibodies can interfere with the development of immunity and it is therefore important not to give the measles vaccine too early in life. At the same time you do not want to wait too long because it increases the risk that the child is infected with measles. Measles vaccine is often combined with vaccines against rubella and mumps.

MUMPS

Mumps is an infection caused by a virus. It is sometimes called infectious parotitis, and it does primarily affect the salivary glands. Mumps is mostly a mild child disease it affects children between 5 and 9 years old. But the mumps virus can also infect adults.

Mumps virus is spread by airborne droplets released, and infects a person sneezing and coughing and by direct contact with an infected person.

The signs and symptoms of mumps appear within 14 to 21 days after a person is infected.
Swelling of the salivary glands, just below and in front of the ears, is the prominent symptom. The swelling may occur on either side of the neck. Other symptoms include pain when chewing or swallowing, fever, weakness, tenderness and swelling of the testicles.

There are rare complications from mumps, but they can be serious.

In men and teenage boys, an inflammatory condition called orchitis may cause swelling in one or both testicles. Orchitis is painful and sometimes can cause sterility. Encephalitis, meningitis, and hearing loss are other rare complications that can occur in people infected at any age.

There is no treatment for mumps but can be highly protected by mumps vaccine.

People who get mumps and recover are thought to have lifelong protection against the virus.

Vaccine: The MMR vaccine is an immunization shot against measles, mumps and rubella (also called German measles).
The vaccine is a mixture of three live attenuated viruses, administered via injection. The shot is generally administered to children around the age of 15 months, with a second dose before starting school (i.e. age 4). The second dose is not a booster; it is a dose to produce immunity in the small number of persons who fail to develop measles immunity after the first dose.

RUBELLA

Rubella is a virus that is spread with respiratory droplets through the air. The illness is usually mild with low-grade fever and a rash that can be mistaken for measles rash. Other symptoms include swollen lymph nodes, tiredness and red eyes. The most serious consequences of rubella result from infection before birth. If a pregnant woman is infected with rubella, the virus will infect also the unborn child. There is a very high risk, especially if the infection occurred during the first three months of pregnancy that the child could be born with complications such as undeveloped brain, heart malformation, blindness and deafness. This is the main reason why we immunize against this otherwise mild disease.

Rubella vaccine is usually given in a combination with measles as MMR vaccine.

HUMAN PAPILLOMA VIRUS

Human Papilloma Virus is a common virus that is passed from person to person through oral sex, anal sex or penile-vaginal sex. There are more than 40 HPV types that can affect the genital areas of male and females. HPV is a major cause of cervical cancer in women. Most people do not show any symptoms of HPV. At least half of sexually active people will get HPV sometimes in their lives. HPV is most common in people in their late teens and early 20s.

Vaccine: Cervarix contains inactivated extracts from two different types of the human papilloma virus: types 16 and 18. HPV types 16 and 18 are responsible for approximately 70 per cent of cervical cancer cases. Cervarix stimulates the immune system to produce antibodies against these types of the virus and is given to prevent the pre-cancerous changes and cervical cancer that they can cause.

The vaccine is given by injection into the muscle of the upper arm. Three doses are needed. The first two doses are given one month apart and the third dose six months after the first dose.

IMMUNIZATION REFUSAL FORM

To whom it may concern,

I ……hereby refuse (name of vaccine)……

vaccination to be given to my child. I take full responsibility for any problems that may arise to

……..(name of child, DOB & gender) from not having these

immunization/s.

Signature of parent/caregiver: ……

Date: ……

Witness: ……

Witness: ……

IMMUNIZATION CONSENT FORM

Dear Parents/Care givers,

The Public Health Nurses will be carrying out an immunization program throughout the year and a Deworming program twice a year (March and September).

Please consent for your child to be immunized/dewormed by ticking √ the box provided.

A. CHILDREN 4 YEARS OLD ☐

- DIPTHERIA, PERTUSSIS, TETANUS. (DPT4)
- POLIO (4)
- MEASLES, MUMPS, RUBELLA (MMR 2)

B. CHILDREN 11 YEARS OLD ☐

- TETANUS TOXOID

C. FEMALES 9 YEARS OLD x 3 doses ☐

- HUMAN PAPILLOMA VIRUS (HPV) VACCINE

D. CHILDREN 2YEARS – 12 YEARS OLD ☐

- DEWORMING

E. CHILDREN 3 YEARS – 5 YEARS OLD ☐

- **EAR CHECK**

Please complete the consent form that your child will bring home and return it to school.

For further information please contact Public Health 29110

Child' s Name: _____

Class/Grade/Year: _____ **Date of Birth:** _____

Age: _____

☐ **I approve**

☐ **I disapprove reason being** _____

☐ **Already vaccinated/dewormed/Ear checked**

Parent/Guardians name & signature._____

IMMUNIZATION CERTIFICATE: Children born up to 2008.

FAMILY NAME

FIRST NAME

BIRTH DATE

Vaccinator to complete information on early childhood immunizations, according to the Cook Islands National Immunization Schedule.

1. **Fully immunized at Birth ☐** **Not fully immunized**

   ☐BCG 1st Dose ☐ Hepatitis B 1st Dose ☐

2. **Fully immunized to 1 month ☐** **Not fully immunized ☐**

   Hepatitis B 2nd Dose ☐

3. **Fully immunized to 3 Months ☐** **Not fully immunized ☐**

   DPT 1st Dose ☐ Polio 1st Dose ☐

4. **Fully immunized at 6 Months ☐** **Not fully immunized ☐**

   Hepatitis B 3rd Dose ☐ DPT 2nd Dose ☐ Polio 2nd Dose ☐

5. **Fully immunized at 9 Months ☐** **Not fully immunized ☐**

   DPT 3rd Dose ☐ Measles 1st Dose ☐

6. **Fully immunized to 12 Months ☐** **Not fully immunized ☐**

   Measles 2nd Dose ☐

7. **Fully immunized to 5 years ☐** **Not fully immunized ☐**

   DT ☐ Polio 3rd Dose ☐ BCG 2nd Dose ☐ Measles 3rd Dose ☐

8. **Fully immunized to 10 years ☐** **Not fully immunized ☐**

   TT ☐

9. Fully immunized to 15 years ☐ Not fully immunized ☐

TT ☐

VACCINATOR' S DECLARATION

I agree that this immunization information is correct, I have explained what may happen if all immunization are not given.

NAME OF VACCINATIOR: SIGNATURE: DATE:

IMMUNIZATION CERTIFICATE: Children born from 2009/New Schedule.

FAMILY NAME

FIRST NAME

BIRTH DATE

Vaccinator to complete information on early childhood immunizations, according to the Cook Islands National Immunization Schedule.

1. **Fully immunized at Birth ☐** **Not fully immunized ☐**
   BCG ☐ Hepatitis B ☐
2. **Fully immunized at 6 weeks ☐** **Not fully immunized ☐**
   Pentavalent (DPT, Hib, HepB) ☐ Polio ☐
3. **Fully immunized at 3 Months ☐** **Not fully immunized ☐**
   Pentavalent (DPT, Hib, HepB) ☐ Polio ☐
4. **Fully immunized at 5 Months ☐** **Not fully immunized ☐**
   Pentavalent (DPT, Hib, HepB) ☐ Polio ☐
5. **Fully immunized at 15 Months ☐** **Not fully immunized ☐**
   MMR☐
6. **Fully immunized at 4 Years ☐** **Not fully immunized ☐**
   DPT ☐ Polio ☐ MMR ☐
7. **Fully immunized at 9 Years (Girls only) x 3 doses ☐** **Not fully immunized ☐**
   1st dose ☐ 2nd dose ☐ 3rd dose ☐
8. **Fully immunized at 11 Years ☐** **Not fully immunized ☐**
   TT ☐

VACCINATOR' S DECLARATION

I agree that this immunization information is correct, I have explained what may happen if all immunization are not given.

VACCINATORS NAME: SIGNATURE: DATE:

STAMP HERE

VACCINATION CENTRES

1. Rarotonga Hospital, Community Health Services Tupapa, schools, homes and Maternal Health Clinics.

2. Aitutaki Hospital, schools and districts

3. Mangaia Hospital, districts and schools

4. Atiu Hospital and school

5. Mitiaro Hospital, district and school

6. Mauke Hospital and school

7. Pukapuka Hospital, school and districts

8. Penrhyn Hospital and schools

9. Rakahanga Hospital and school

10. Manihiki Hospital and school

11. Nassau Health Centre and school

12. Palmeston Health Centre and school

NB:

Policy reviewed in March 2010 due to introduction of Pentavalent and MMR in June 2009, it was reviewed again in March 2012 due to introduction of HPV in May 2011 and again in November 2012 during EPI Strengthening Workshop.

VACCINE FRIDGE TEMPERATURE CHART – AIM FOR $^{+}$2°C TO $^{+}$8°C

MONTH:…….. YEAR:…….... DATE:……...

TEMP °C	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
>12																															
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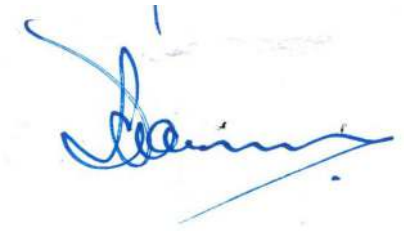
0																															
-1																															
<-2																															
Initials																															

- **Record temperature daily. Indicate minimum temperature with an X: current temperature with an O.**
- **Remember to reset the thermometer after reading each day.**

IMMUNIZATION MONITOR CHART

	JAN	CUM Total	FEB	CUM Total	MAR	CUM Total	APR	CUM Total	MAY	CUM Total	JUN	CUM Total	JUL	CUM Total	AUG	CUM Total	SEP	CUM Total	OCT	CUM Total	NOV	CUM Total	DEC	CUM Total
(P1 Pentava	10	10	12	22	7	29	12	41	14	55	15	70	14	84	7	91	10	101	12	113	3	116	31	147
P3	8	8	9	17	8	25	10	35	11	46	12	58	12	70	7	77	5	82	11	93	14	107	3	110
Drop out number		2		5		4		6		9		12		14		15		19		20		9		37
Drop out %		20		23		14		15		16		17		17		16		20		18		89		25

Approved by Director of Community Health Dr Rangiau Fariu:



DATE: DECEMBER 2012