وزارة الصحة
Ministry of Health

IMMUNIZATION SUMMARY GUIDE BOOKLET

This booklet is used to raise the awareness of health care workers about vaccines, vaccines handling and vaccines management

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This work was accomplished through the team work:

Dr Adel Salman AlSayyad
Chief of Diseases Control Section

Dr Jaleela S.Jawad
Head of Immunization Group

Dr Basma AlSafffar
Public Health Consultant

Edited and reviewed by:

Dr. Mariam E.A. AL Hajeri
Assistant undersecretary for Primary Healthcare and Public Health

Dr Najat Mohammed Abulfateh
Director of Public Health Directorate

Dr Adel Salman AlSayyad
Chief of Diseases Control Section

Dr Jaleela S.Jawad
Head of Immunization Group

Dr Basma AlSafffar
Public Health Consultant

Dr Kubra S. Nasser
Head of Communicable Diseases Group

Approved by:

Dr. Mariam E.A. AL Hajeri

Designed by:

Mr. Ali Almawali

Importance of vaccination

- Immunization by vaccines is an effective intervention modality in controlling and eliminating dangerous infectious diseases and reducing the risk of disability and death related to them.
- Vaccines are considered among the most cost effective preventive strategy to reduce the burden of diseases targeted by vaccination.
- Vaccination is simple procedure that can be delivered to targeted population without requiring major changes in their life style.
- Vaccines are generally safe; the risks from diseases are much greater than associated risk with vaccines.

Recommended Immunization Schedule for the Kingdom of Bahrain

Children		
AGE	**VACCINE**	**DOSE**
At birth	BCG for newborns born to parents originally from endemic countries	Single Dose
	Hepatitis B for newborns	Birth Dose
2 months	Diphtheria, Pertussis, Tetanus (DaPT), Tetanus), Hepatitis B, Haemophilus Influenza Type B (Hib) + Inactivated Polio (as Hexavalent)	1st Dose
	Pneumococcal Conjugate (PCV)	1st Dose
	Rota vaccine (oral)	1st Dose
4 months	Diphtheria, Pertussis, Tetanus (DaPT), Tetanus), Hepatitis B, Haemophilus Influenza Type B (Hib) + Inactivated Polio (as Hexavalent)	2nd Dose
	Oral Polio Vaccine (OPV)	2nd Dose
	Pneumococcal Conjugate (PCV)	2nd Dose
	Rota vaccine (oral)	2nd Dose
6 months	DPT, Hepatitis B, Hib (as Pentavalent)	3rd Dose
	Oral Polio Vaccine (OPV)	3rd Dose
12 months	Measles, Mumps, Rubella (MMR)	1st Dose
	Varicella	1st Dose
15 months	Pneumococcal Conjugate (PCV)	Booster
	Hepatitis A	1st Dose
18 months	Measles, Mumps, Rubella (MMR)	2nd Dose
	Tetravalent (DPT, Hib) or Pentavalent according to availability.	1st Booster
	Oral Polio Vaccine (OPV)	1st Booster

Recommended Immunization Schedule for the Kingdom of Bahrain (contd.)

Children		
AGE	**VACCINE**	**DOSE**
2 years	Meningococcal Conjugate (ACYW)	Single Dose
	Hepatitis A	2nd Dose
3 years	Varicella	2nd Dose
4-5 years	DTaP-IPV (Diphtheria, Tetanus, Pertussis, Inactivated Polio)	2nd Booster
	Oral Polio Vaccine (OPV)	2nd Booster
	Measles, Mumps, Rubella (MMR) if no document of 2 valid doses of MMR vaccination previously.	Catch up dose (if not completed)
ADOLESCENTS		
years 13	Tetanus, Diphtheria, acellular Pertussis (Tdap)	Booster
FFOR PREVIOUSLY UNIMMUNISED WOMEN AT REPRODUCTIVE AGE GROUP		
Tetanus (diphtheria (Td	At first contact	Td1
	At least 4 weeks after Td1	Td2
	At least 6 months after Td2	Td3
	1 year after Td3	Td 1st booster
	1 year after Td 1st booster	Td 2nd booster

Recommended Immunization Schedule for the Kingdom of Bahrain (contd.)

ADULT, ELDERLY AND HIGH RISK GROUPS	
Pneumococcal Conjugate (PCV)	Single dose for adolescent, adult and elderly from high risk groups. single dose for adults ≥ 50 years and elderly.
Pneumococcal Polysaccharide (PPSV23)	Single dose for ≥ 65 years and for high risk groups ≥ 2-64 years. Revaccination dose after 5 years is recommended for certain risk groups including (Sickle cell disease/other hemaglobinopathies, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, malignancy, leukemia, lymphoma, iatrogenic immunosuppression, solid organ transplant).
Tdap	Single dose might be given to those at risk of infection.
Seasonal Influenza	Annually for each season from age of ≥6 months. It is recommended to certain risk categories (children ≤ 5 years, adults/elderly ≥50 years and certain chronic medical conditions such as: chronic pulmonary diseases, chronic cardiovascular diseases, chronic renal diseases, chronic hepatic diseases, chronic hematological conditions, chronic metabolic disorders including diabetes mellitus, chronic neurologic and neurodevelopment conditions, Immune-suppressed individuals by medications or by disease condition, pregnant women, health care workers and other categories at risk to be determined by treating physician).
Varicella (Chickenpox)	For certain risk groups without documented infection or vaccination. Two doses, 3 months apart from 1 -12 years of age and as 2 doses 4 weeks apart for ≥ 13 years of age.
Meningococcal conjugate ACWY	Single dose to certain risk groups and travelers to Holly places, meningitis belt countries and countries reporting outbreak. Booster doses every 5 years is given for certain categories remain at risk of infection such as: functional or anatomical asplenia (including sickle cell disease), persistent complement component deficiency and people with HIV infection.
Haemophilus Influenza Type B (Hib)	Single dose for >5 years of age having any of the following conditions: sickle cell disease, anatomical and/or surgical asplenia, post bone marrow transplant and certain cancer after completion of treatment.

Recommended Immunization Schedule for the Kingdom of Bahrain (contd.)

HAJIIs		
Meningococcal conjugate (ACWY)	Single dose	
Seasonal Influenza	Annually for each season	
OTHER VACCINES		
Travelers (according to travel destination)	Yellow Fever	Single dose
	Typhoid	Single dose (typhoid polysaccharide is repeated after 3 years if indicated)
	Hepatitis A	2 doses (if not vaccinated previously)
	Meningococcal conjugate ACWY	Single dose for traveler to certain countries
	OPV/IPV	Booster dose for traveler to Polio endemic/ Polio reporting countries
Post exposure prophylaxis (depend on exposure and risk category)	Rabies	4 doses plus RIG (single)
Contacts	Hepatitis B	3 doses
	Hepatitis A	2 doses
Immune-compromised & their household contacts	Inactivated Polio(killed polio)	4-5 doses

* Other vaccines for high risk/ special groups determined by risk category and according to assessment of treating physician.

Vaccination for Special Risk Patients

Disease Condition	Vaccines Recommended	Doses
Diabetes Mellitus	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	Hepatitis B vaccine	3 doses
	Inactivated seasonal influenza vaccine	Single dose annually every season
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series
Heart disease/ Stroke	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	Inactivated seasonal influenza vaccine	Single dose annually every season
Chronic renal failure including renal dialysis patients	Hepatitis B vaccine	3-4 doses
	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose and revaccination dose after 5 years
	Inactivated seasonal influenza vaccine	Single dose annually every season

Vaccination for Special Risk Patients (contd.)

Disease Condition	Vaccines Recommended	Doses
Chronic liver disease	Hepatitis B vaccine	3 doses
	Hepatitis A vaccine	2 doses
	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	Inactivated seasonal influenza vaccine	Single dose annually every season
Chronic lung disease	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	Inactivated seasonal influenza vaccine	Single dose annually every season

Vaccination for Special Risk Patients (contd.)

Disease Condition	Vaccines Recommended	Doses
Sickle cell disease patients. Patients with functional or anatomical asplenia and pre- splenectomy	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose and revaccination dose after 5 years
	Hepatitis B vaccine	3 doses
	Meningococcal ACWY conjugate vaccine	Single dose, booster doses every 5 years (according to manufacturer)
	Inactivated seasonal influenza vaccine	Single dose annually every season
	Haemophilus influenza type B (Hib) for those >5 years of age	Single dose
Cochlear implants	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
HIV (determined by treating physician)	Pneumococcal polysaccharide (PPSV)	Single dose and revaccination dose after 5 years
	Pneumococcal Conjugate (PCV)	Single dose
	Inactivated seasonal influenza vaccine	Single dose annually every season
	Hepatitis B vaccine	3 doses
Immunocompro-mised by malignancy/ Post Bone marrow transplant	Refer to oncology and Post Bone marrow transplant guidelines, (fitness certificate from treating physician is required)	

Vaccination for Special Risk Patients (contd.)

Disease Condition	Vaccines Recommended	Doses
Post solid organ transplant (to be determined by treating physician)	Hepatitis B vaccine	3 doses (check Hepatitis B immunity after 1-2 months of last dose) If the vaccine was received before check immunity and accordingly to decide about the need of repeating vaccination series for non-immune).
	Pneumococcal conjugate vaccine	One dose
	Pneumococcal polysaccharide vaccine	One dose and revaccination dose after 5 years.
	Inactivated seasonal influenza vaccine	Single dose annually every season
	Tetanus/Diphtheria (Td) Toxoid/ Tdap.	Booster dose after completing the primary series.

* To start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine (the minimum interval is 8 weeks). However if patient received pneumococcal polysaccharide vaccine before to wait for one year prior to pneumococcal conjugate vaccine administration. If the most recent dose of PPSV23 was administered before the age of 65 years , at age of 65 years or older, administer another dose of PPSV23 at least 5 years after the last dose PPSV23.

**Varicella vaccine: is recommended to certain risk categories such as non-immune healthcare works in direct contact with patients, for healthy susceptible in close household contact of immunocompromised patients (e.g. siblings of a child with leukemia, or a child whose parent is on chemotherapy), and certain diseases that make patient more vulnerable to complication of the infection and others determined by healthcare providers.

*** Hepatitis A vaccine: is given according to routine schedule and if otherwise indicated.

Recommended and minimum ages and intervals between doses of routinely recommended vaccines

Vaccine and the scheduled dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Diphtheria-Tetanus Pertussis DTP-1	2 months	6 weeks	4 weeks
DTP-2	4 months	10 weeks	4 weeks
DTP-3	6 months	14 weeks	6 months
DTP-4	18 months	15 months	6 months
DTP-5	4-5 years	4 years	—
Tetanus-diphtheria-acellular pertussis (Tdap)	13 years	(according to manufacturer)	—
Haemophilus Influenza type B Hib-1	2 months	6 weeks	4 weeks
Hib-2	4 months	10 weeks	4 weeks
Hib-3	6 months	14 weeks	8 weeks
Hib-4	18 months	12 months	—
Hepatitis A HepA-1	15 months	12 months	6 months
HepA-2	2 years	18 months	—

Vaccine and the scheduled dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Hepatitis B HepB-birth dose	Birth	Birth	4 weeks
HepB-1	1-2 months	4 weeks	4 weeks
HepB-2	4 months	8 weeks	8 weeks
HepB-3	6-18 months	24 weeks	—
Poliovirus, Inactivated IPV-1	2 months	6 weeks	4 weeks
IPV-2	4 months	10 weeks	4 weeks
IPV-3 Immune-compromised & their household contacts	6 months	14 weeks	6 months
IPV-4 Immune-compromised & their household contacts	18 months	18 weeks	6 months
IPV-5	4-5 years	4 years	—
Poliovirus OPV-1	4 months	6 weeks (in certain situation birth dose is given)	4 weeks
OPV-2	6 months	10 weeks	4 weeks
OPV-3	18 months	14 weeks	6 months
OPV-4	4-5 years	4 years	—

Recommended and minimum ages and intervals between doses of routinely recommended vaccines (contd.)

Vaccine and the scheduled dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Rotavirus RV-1	2 months	6 weeks	4 weeks
RV-2	4 months	10 weeks	4 weeks (if pentavalent Rota virus vaccine is used)
RV-3 (given if pentavalent Rota virus vaccine is used)	6 months	14 weeks	-
Pneumococcal conjugate PCV-1	2 months	6 weeks	4 weeks
PCV-2	4 months	10 weeks	4 weeks
PCV-3 (for certain categories)	6 months	14 weeks	8 weeks
PCV-last dose (booster)	12 - 15 months	12 months	—
VaricellaVar-1	12 months	12 months	12 weeks (for those <13 years) 4-6 weeks (for ≥13 years)
Var-2	3 years	15 months	—
Measles-Mumps-Rubella MMR-1	12 months	12 months	4 weeks
MMR-2	18 months	13 months	—

Vaccine and the scheduled dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Pneumococcal polysaccharide PPSV-1	2 years (for high risk groups)	2 years	5 years (for certain high risk groups (Sickle cell disease/other hemaglobinopathies, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, malignancy, leukemia, lymphoma, iatrogenic immunosuppression, solid organ transplant).
PPSV-2	7 years	-	-
Meningococcal conjugate ACWY (MCV4)-1	2 years	Depend on manufacturer, type of vaccine and risk category	5 years for (depend on manufacturer, type of vaccine and risk category including sickle cell diseases, asplenia and complement deficiency)

Recommended and minimum ages and intervals between doses of routinely recommended vaccines (contd.)

Vaccine and the scheduled dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Human papillomavirus HPV-1	11-12 years	9 years	4 weeks
HPV-2	11-12 years (+ 2 months)	9 years (+ 4 weeks)	12 weeks
HPV-3	11-12 years (+ 6 months)	9 years (+24 weeks)	—

For HPV vaccines, a 2-dose schedule with a 6-month interval between doses can be used for individuals receiving the first dose before 14 years of age. A 3-dose schedule (0, 1–2, 6 months) is recommended to be used for all vaccinations initiated ≥15 years of age.

Spacing Live and Killed Antigen Vaccines

Antigen Combination	Recommended minimum interval between doses
2 killed antigens.	None. May be given simultaneously or with any interval between doses.
Killed and live antigens	None: may be given simultaneously or with any interval between doses.
2 live injectable antigens.	4-weeks minimal interval if possible. If not, should be administered simultaneously at different sites.
Live injectable and oral live	None: may be given simultaneously or with any interval between doses.

Spacing between Vaccines and Antibody-containing products

Product Combination	Recommended minimum interval between doses
Antibody-containing products and inactivated vaccines	None: may be given simultaneously at different anatomic sites or with any interval between doses.
Antibody-containing products and live antigen other than measles-containing vaccine or varicella containing vaccine	None: may be given simultaneously at different anatomic sites or with any interval between doses.
Antibody-containing products and live antigen specifically measles-containing vaccine or varicella containing vaccine	If Live antigen containing vaccine (measles-containing vaccine or varicella containing vaccine) administered first, wait at least 2 weeks prior to administration of Antibody-containing product.
	If Antibody-containing products administered first, the interval to the administration of Live antigen containing vaccine (measles-containing vaccine or varicella containing vaccine) is determined by the dose and type of product (see table below on the products and intervals)
	If simultaneous administration of measles-containing vaccine or varicella vaccine is unavoidable, administer at different sites and revaccinate or test for seroconversion after the recommended interval.

Recommended interval before measles- or varicella-containing vaccine administration

Product	Indication/ type	Dose (mg IgG/kg) and route	Recommended interval before measles- or varicella-containing vaccine administration (months)
Tetanus (IG)	Post exposure	250 units (10 mg IgG/kg) IM	3
Hepatitis A (IG)	Contact prophylaxis	0.02 mL/kg (3.3 mg IgG/kg) IM	3
Hepatitis B (IG)	Post exposure	0.06 mL/kg (10 mg IgG/kg) IM	3
Rabies (IG)	Post exposure	20 IU/kg (22 mg IgG/kg) IM	4
Varicella (IG)	Post exposure	125 units/10 kg (60–200 mg IgG/kg) IM, maximum 625 units	5
Measles prophylaxis IG	Standard (non-immunocompromised) contact	0.25 mL/kg (40 mg IgG/kg) IM	5
	Immunocompromised contact	0.50 mL/kg (80 mg IgG/kg) IM	6

Recommended interval before measles- or varicella-containing vaccine administration (contd.)

Product	Indication/ type	Dose (mg IgG/kg) and route	Recommended interval before measles- or varicella-containing vaccine administration (months)
Blood transfusion	RBCs, washed	10 mL/kg, negligible IgG/kg IV	None
	RBCs, adenine-saline added	10 mL/kg (10 mg IgG/kg) IV	3
	Packed RBCs (hematocrit 65%)	10 mL/kg (60 mg IgG/kg) IV	6
	Whole blood (hematocrit 35%–50%)	10 mL/kg (80–100 mg IgG/kg) IV	6
	Plasma/platelet products	10 mL/kg (160 mg IgG/kg) IV	7
Cytomegalovirus IGIV		150 mg/kg maximum	6
IGIV	Replacement therapy for immune deficiencies	400 mg/kg IV–300	8
	Immune thrombocytopenic purpura treatment	400 mg/kg IV	8
		1000 mg/kg IV	10
	Post exposure varicella prophylaxis	400 mg/kg IV	8
	Kawasaki disease	2 g/kg IV	11
Monoclonal antibody to respiratory syncytial virus F protein		15 mg/kg IM	None

* Vaccination with rubella containing vaccination is recommended to rubella non immune women during post postpartum period and should not be delayed if anti-Rho(D) globulin was administered during the third trimester or in post-partum period and if possible, to test for immunity to rubella after ≥3 months from vaccination.

Guide to Contraindications and Precautions to Commonly Used Vaccines

Vaccine	Contraindications	Precautions
Hepatitis B (HepB)	» Severe allergic reaction after a previous dose or to a vaccine component.	» Moderate or severe acute illness with or without fever. » Infant weighing less than 2000 grams (they might not respond will but are likely to respond with additional dose at age of 1 - 2 months).
Rotavirus	» Severe allergic reaction after a previous dose or to a vaccine component. » History of intussusception. » Uncorrected congenital Gastrointestinal Tract malformation. » Severe combined immunodeficiency (SCID).	» Moderate or severe acute illness with or without fever. » Altered immunocompetence. » Chronic gastrointestinal disease. » Spina bifida or bladder exstrophy.
Haemophilus influenza type B (Hib)	» Severe allergic reaction after a previous dose or to a vaccine component. » Age < 6 weeks.	» Moderate or severe acute illness with or without fever.
Inactivated poliovirus vaccine (IPV)	» Severe allergic reaction after a previous dose or to a vaccine component.	» Moderate or severe acute illness with or without fever. » Pregnancy.

Vaccine	Contraindications	Precautions
Pneumococcal polysaccharide (PPSV23)	» Severe allergic reaction after a previous dose or to a vaccine component.	» Moderate or severe acute illness with or without fever.
Pneumococcal conjugate (PCV)	» Severe allergic reaction after a previous dose or to a vaccine component (for PCV13 allergy to diphtheria toxoid-containing vaccine).	» Moderate or severe acute illness with or without fever.

Guide to Contraindications and Precautions to Commonly Used Vaccines (contd.)

Vaccine	Contraindications	Precautions
Diphtheria, tetanus, pertussis (DTaP). **Tetanus, diphtheria, pertussis (Tdap).** **Tetanus, diphtheria (DT, Td).**	» Severe allergic reaction after a previous dose or to a vaccine component. » In addition for pertussis-containing vaccines: » Encephalopathy or Evolving brain disease within 7 days of administration of previous dose of DTP/DTaP/Tdap containing vaccine, not attributable to another identifiable cause	» Moderate or severe acute illness with or without fever. » Guillain-Barre syndrome (GBS) < 6 weeks of previous dose of tetanus toxoid-containing vaccine. » History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine. » In addition for pertussis-containing vaccines: progressive or unstable neurologic disorder (including infantile spasms), uncontrolled seizures until treatment regimen has been established and the condition has stabilized. **For DTaP only:** » Temperature of 40.5° C or higher within 48 hours of previous dose of DTP/DTaP. » Collapse or shock-like state (hypotonic hyporesponsive episode) within 48 hours of previous dose of DTP/DTaP. » Seizure ≤ 3 days after receiving a previous dose of DTP/DTaP. » Persistent, inconsolable crying lasting 3 or more hours within 48 hours of previous dose of DTP/DTaP.

Vaccine	Contraindications	Precautions
Oral poliovirus vaccine	» Allergy, Known severe immunodeficiency (chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or HIV infection and who are severely immunocompromised) » Household contact of immune-compromised. » Pregnancy.	» Moderate or severe acute illness with or without fever.
Measles, Mumps, Rubella (MMR)	» Severe allergic reaction after a previous dose or to a vaccine component. » Known severe immunodeficiency by disease or medication. » Pregnancy.	» Moderate or severe acute illness with or without fever. » Recent receipt of antibody-containing blood product (specific interval depends on product). » History of thrombocytopenia or thrombocytopenic purpura. » Need for tuberculin skin testing TST or IGRA testing (MMR vaccine may interfere with TST reactions). » If a TST, testing should be done, the following might be done: Either on the same day as MMR vaccination OR postponed for ≥ 4 weeks after the administration of MMR vaccine).

Guide to Contraindications and Precautions to Commonly Used Vaccines (contd.)

Vaccine	Contraindications	Precautions
Varicella	» Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. » Known severe immunodeficiency by disease or medication. » Pregnancy. » Family history of congenital or hereditary immunodeficiency in first degree relatives unless immune competence for individual targeted for vaccination is verified by treating physician vaccine	» Moderate or severe acute illness with or without fever. » Recent (≤ 11 months) receipt of antibody-containing blood product (specific interval depends on product). » Receipt of specific antivirals (i.e., acyclovir, famiciclovir or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.
Hepatitis A (Hep A)	» Severe allergic reaction after a previous dose or to a vaccine component.	» Moderate or severe acute illness with or without fever.
Inactivated Influenza Vaccine	» Severe allergic reaction after a previous dose of any influenza vaccine or to a vaccine component, including egg protein.	» Moderate or severe acute illness with or without fever. » History of Guillain-Barre syndrome (GBS) < 6 weeks of previous influenza vaccination. » Egg allergy other than hives , angioedema or respiratory distress.

Vaccine	Contraindications	Precautions
Human papillomavirus (HPV)	» Severe allergic reaction after a previous dose or to a vaccine component.	» Moderate or severe acute illness with or without fever. » Pregnancy
Meningococcal ACWY conjugate	» Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	» Moderate or severe acute illness with or without fever.
Yellow Fever Vaccine	» Severe allergy to any component of the vaccine including eggs, chicken proteins, or gelatin, or who has had a severe allergic reaction to a previous yellow fever vaccine dose. » Immunodeficiency » Pregnancy.	» Moderate or severe acute illness with or without fever.
Typhoid polysaccharide vaccine	» Allergy to any of the vaccine components or to a previous dose of the vaccine.	» Moderate or severe acute illness with or without fever.
Rabies vaccine	Allergic reaction to the vaccine or any of its components.	Moderate or severe acute illness with or without fever.

Poliomyelitis Vaccine

Oral polio (OPV)

Type of Vaccine: Live attenuated virus
Minimum Age: 6 Weeks but can be administered at birth in special situation.
Dose: 2 drops for multi dose vial.
Route of Administration: Oral

Inactivated polio (IPV)

Type of Vaccine: Inactivated virus
Minimum Age: 6 weeks
Dose: 0.5 ml
Site of Administration: Infants: anterolateral aspect of the thigh. Older children: deltoid muscle.
Route of Administration: Intramuscular
Number of Doses for polio vaccines (OPV/IPV): 3 doses and 2 boosters
It is usually given at the age of 2, 4, 6, 18 months and 5 years. IPV used for those with congenital Immunodeficiency or Immunodeficiency by disease or immunosuppressive medication and their household contacts. Also, IPV replaced OPV for certain doses in the schedule.
Schedule: Follow the updated national routine immunization schedule.

Poliomyelitis Vaccine (contd.)

Precautions: Moderate or severe acute illness with or without fever.
Contraindications:
For Oral polio (OPV): Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, severe combined immunodeficiency (SCID), severe immunodeficiency (e.g., from hematologic and solid tumors; chemotherapy; congenital immunodeficiency; or long-term immunosuppressive therapy; or patients with HIV).
For Inactivated polio (IPV): Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
Side Effects
For Oral polio (OPV): The most serious adverse reaction are rare cases of vaccine associated paralytic polio (VAPP) . The risk of vaccine-associated paralytic poliomyelitis following oral polio vaccine (OPV) is low. However, Inactivated Polio Vaccine is administered to decrease the risk of vaccine-associated paralytic poliomyelitis.
For Inactivated polio (IPV): The vaccine is generally safe but it might cause redness and soreness at the site of injection.

Tetanus, diphtheria, Pertussis (DTP, DTaP, Tdap), Tetanus Diphtheria, (Td, DT)

Diphtheria, Tetanus, Pertussis (DTP)

Type of Vaccine: Diphtheria and Tetanus toxoids and inactivated Pertussis bacteria.
Minimum Age: 6 Weeks for DTP/DT and Tdap according to manufacturer
Dose: 0.5 ml
Site of Administration: For infants at anterolateral aspect of the thigh. For older children and adults in the deltoid muscle.
Route of Administration: Intramuscular.
Number of Doses: 3 doses and 3 boosters. DT vaccine is replacing DTP containing vaccine if the child is allergic to pertussis component or if pertussis vaccine is contraindicated. If tetanus vaccination is started during adulthood, a total of 5 doses is recommended to provide longer protection.
Schedule: Follow the updated national routine immunization schedule.
*For children less than 7 years, it is given as DTP, Td is given for children ≥ 7 Years through 10 years (according to manufacturer, while Tdap given routinely as booster dose for adolescents. For catch up vaccination of older population you may substitute Tdap vaccine for Td vaccine once.
* Booster dose might be considered to be given every 10 years according to risk estimation.
(if indicated and for those at higher risk of infection).
For catchup vaccination of adults receiving their primary immunization, the 1st and 2nd doses should be delivered with an interval of at least 4 weeks, and the 2nd and 3rd doses with an interval of at least 6 months. If the catch-up dose is the 3rd TTCV dose received, then an interval of at least 6 months is recommended between the 2nd and 3rd doses.

Tetanus, diphtheria, Pertussis (DTP, DTaP, Tdap), Tetanus Diphtheria, (Td, DT) (contd.)

Precautions: Moderate or severe acute illness with or without fever. Guillain-Barre syndrome (GBS) < 6 weeks of previous dose of tetanus toxoid-containing vaccine. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine. **In addition for pertussis-containing vaccines:** Progressive or unstable neurologic disorder (including infantile spasms), uncontrolled seizures until treatment has been established and the condition has stabilized. **For DTaP only:** Temperature of 40.5° C or higher within 48 hours of previous dose of DTP/DTaP.

- Collapse or shock-like state (hypotonic hypo-responsive episode) within 48 hours of previous dose of DTP/DTaP.
- Seizure ≤ 3 days after receiving aprevious dose of DTP, DTaP

Contraindications: Severe allergic reaction after a previous dose or to a vaccine component. In addition for pertussis-containing vaccines: Encephalopathy or evolving brain disease within 7 days of administration of previous dose of DTP/DTaP/Tdap containing vaccine, not attributable to another identifiable cause.
Side Effects: Minor local reactions including pain and erythema can occur. Also, mild systemic reactions in the form of fever, aches and malaise, nodules and sterile abscess is also rarely reported. The severity and the occurrence of both local and systemic reactions increase with increasing number of vaccine doses administered in the past. Other uncommon reactions including: seizure, continuous crying for 3 hours and high grade fever. However, rarely serious reaction might occur such as severe allergic reactions to vaccine component.

Tetravalent vaccine (DTaP, Hib) Vaccine

Type of Vaccine: Inactivated vaccine that contains (Diphtheria and Tetanus Toxoids, inactivated bacteria of pertussis and inactivated Haemophilus Influenza type B).

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration: Infants: anterolateral aspect of thigh. Older children: deltoid muscle.

Route of Administration: Intramuscular

Doses and Schedule: Follow the updated national routine immunization schedule

Precautions: Refer to the precautions of individual vaccine.

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
- Nervous system disease not attributable to another identifiable cause within 7 days of administration of previous dose of DTP, DTaP or Tdap.
- Age younger than 6 weeks.

Side Effects: Refer to the side effects of individual vaccine.

Pentavalent (DTP, HiB, Hepatitis B) Vaccines

Type of Vaccine: Inactivated vaccine that contains (Diphtheria and Tetanus Toxoids, inactivated bacteria of pertussis, inactivated Hepatitis B virus and inactivated Haemophilus Influenza type B).

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of thigh

Route of Administration: Intramuscular

Doses and Schedule: Follow the updated national routine immunization schedule.

Precautions: Refer to the precautions of individual vaccine.

Contraindications:

The following conditions are contraindications for administration of pentavalent vaccine:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
- Nervous system disease not attributable to another identifiable cause within 7 days of administration of previous dose of DTP, DTaP or Tdap.
- Age younger than 6 weeks.

Side Effects: Refer to the side effects of individual vaccine.

Hexavalent (DTP,HiB, Hepatitis B, IPV) Vaccines

Type of Vaccine: Inactivated vaccine that contains (Diphtheria and Tetanus Toxoids, inactivated bacteria of pertussis, inactivated Hepatitis B virus, inactivated Haemophilus Influenza type B and inactivated poliomyelitis vaccine).

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of thigh

Route of Administration: Intramuscular.

Doses and Schedule: Follow the updated national routine immunization schedule.

Precautions: Refer to the precautions of individual vaccine.

Contraindications: The following are contraindications for this vaccine:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
- Nervous system disease not attributable to another identifiable cause within 7 days of administration of previous dose of DTP, DTaP or Tdap.
- Age younger than 6 weeks.

Side Effects: Refer to the side effects of individual vaccine.

Tetravalent(DTaP +IPV) Vaccines

Type of Vaccine: Inactivated vaccine that contains (Diphtheria and Tetanus Toxoids, inactivated bacteria of pertussis and Inactivated Polio Vaccine).

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration: Infants: anterolateral aspect of thigh. Older children: deltoid muscle.

Route of Administration: Intramuscular

Doses and Schedule: Follow the updated national routine immunization schedule

Precautions: Refer to the precautions of individual vaccine.

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
- Nervous system disease not attributable to another identifiable cause within 7 days of administration of previous dose of DTP, DTaP or Tdap.
- Age younger than 6 weeks.

Side Effects: Refer to the side effects of individual vaccine.

Rabies Vaccine

Type of Vaccine: Inactivated

Minimum Age: According to manufacturer

Dose: 0.5 ml or 1 ml depends on the type of vaccine.
Site of Administration: Infant: anterolateral aspect of thigh. Older children and adults: deltoid muscle.

Route of Administration: Either intramuscular or intradermal depend on manufacturer and the nationally recommended regimen.

Number of Doses:

Pre-exposure prophylaxis (PrEP)
PrEP makes administration of rabies immunoglobulin unnecessary after a dog bite.
Accelerated PrEP regimens for healthy individuals in the general population are either a 2-site (0.1 mL per site) intradermal regimen on days 0 and 7, or a 1-site (1 vial per site) intramuscular (IM) regimen on days 0 and 7. Special regimens apply for immunocompromised subjects.

Post exposure prophylaxis (PEP)
Four doses for post exposure prophylaxis (PEP) depending on the manufacturer, route of administration and the nationally recommended regimen.

Post Exposure Prophylaxis (PEP) regimens have proven effective and are recommended depending on health service and patient needs:
(i) The IPC regimen: 2-site (0.1 ml per site) intradermal on days 0, 3 and 7;

Rabies Vaccine (contd.)

(ii) The Essen regimen: 1-site (1 vial per site) intramuscular on days 0, 3, 7 and 14–28, unrestricted for all populations
(iii) The Zagreb regimen: 2 sites intramuscular on day 0 and 1 site, intramuscular on days 7 and 21.

Patients with documented immunodeficiency should be evaluated on a case-by-case basis.
Rabies Immune Globulin :. RIG administered IM distant to the wound is of limited value.

Schedule: Follow the updated national routine immunization schedule and updated rabies vaccine guidelines.

Generally, rabies vaccines is recommended as post exposure prophylaxis for those exposed to rabies outside the kingdom of Bahrain and other categories determined by treating physician based on risk estimation.
Precautions: Refer to the precautions of individual vaccine.

Contraindications:
- Moderate or severe acute illness with or without fever.
- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Side Effects: The vaccine is generally safe but serious reactions rarely occur. Most of the adverse events following vaccination are mild such as fever, dizziness, headache, pain, redness and swelling at injection site.

Varicella (chickenpox) Vaccine

Type of Vaccine: Live attenuated virus

Minimum Age: 12 months

Dose: 0.5 ml

Site of Administration: For infants at anterolateral aspect of the thigh. For older children and adults in the deltoid muscle.

Route of Administration: Subcutaneous (SC).

Number of Doses: 2 Doses.

Schedule: Follow the updated national routine immunization schedule.

*Two doses for those at 1 -12 years of age separated by 3 months and two dose for those more than or equal to (≥ 13 years) of age separated by 4 weeks.

Precautions: Moderate or severe acute illness with or without fever. Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product). Receipt of specific antivirals (i.e. acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination, if possible; delay resumption of these antiviral drugs for 14 days after vaccination.

Contraindications: Hypersensitivity to one of vaccine component or after a previous dose, congenital or acquired immune deficiency. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receiving chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised). Pregnancy and women should avoid getting pregnant for 4 weeks after vaccination, primary and acquired Immunodeficiency.

Side Effects: The vaccine is generally safe, minor side effect including mild tenderness, redness and rash at the injection site. Fever and varicella-type rash is also reported. Serious reactions might occur rarely including some severe allergic reaction to vaccine component.

Measles, Mumps, Rubella Vaccines

Type of Vaccine: Live attenuated viruses

Minimum Age: 12 Months

Dose: 0.5 ml

Site of Administration: Infant: anterolateral aspect of thigh. Older children, adolescent and adults: deltoid muscle.

Route of Administration: Subcutaneous

Number of Doses: 2 Doses with minimum interval of 4 weeks.

This vaccine is given routinely to children. Also given to non-immune woman discovered during premarital counselling and postnatal for rubella non immune discovered during pregnancy, certain health care workers and others at risk of infection. This vaccine usually given at the age of 12 months and 18 months, however it can be given to those susceptible at other ages provided no contraindication.

Schedule: Follow the updated national routine immunization schedule.

Precautions: Moderate or severe acute illness with or without fever, recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product), history of thrombocytopenia or thrombocytopenic purpura and if there is need for tuberculin skin testing.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component and pregnancy. Known severe immunodeficiency (e.g., from hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; or long-term immunosuppressive therapy; or patients with HIV infection who are severely immunocompromised).

Side Effects: MMR vaccine is generally safe. Pain and tenderness at injection site might occur. Fever, mild rash in 2% of vaccine recipient that resolve spontaneously, parotitis and lymphadenopathy. Febrile seizure, transient arthralgia and thrombocytopenia might also occur. Rarely serious reaction might occur such as severe allergic reactions to vaccine component.

Hepatitis B Vaccine

Hepatitis B Child

Type of Vaccine: Inactivated/Recombinant vaccine

Minimum Age: Birth

Dose: The dose for Hepatitis B child vaccine is10 µg (0.5 ml) for children.

Site of Administration: Infants and young Children: anterolateral aspect of thigh. Older children, adolescent and adults: deltoid muscle.

Route of Administration: Intramuscular.

Number of Doses: 3 doses.

Schedule: Follow the updated national routine immunization schedule.

The vaccine is usually given routinely at birth, 2, 4, 6 months. Birth dose is recommended for all new born within 12 hours of birth and it is given as monovalent vaccine. The Hep B vaccine and Hep B immunoglobulin are given at birth for infant of HBs Ag positive mother or of unknown HBsAg status. Generally, the vaccine is given at first visit, then after one month, then after 6 months for people at risk of HBV infection.

Hepatitis B Vaccine (contd.)

Hepatitis B Adult

Type of Vaccine: Inactivated

Minimum Age: Hepatitis B adult vaccine is given with minimum age of ≥ 20 years.

Dose: a dose of 20 µg (1 ml).

Site of Administration: Deltoid muscle

Route of Administration: Intramuscular

Precautions: Moderate or severe acute illness with or without fever. Also for infant weighing less than 2000 grams.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Side Effects: Hepatitis B vaccine is generally safe. Injection site pain, myalgia and transient fever can occur following administration of hepatitis B vaccine. There was no causal association found between hepatitis B vaccine and neurological disease (including Guillain-Barré syndrome and multiple sclerosis), diabetes mellitus, demyelinating disorders, chronic fatigue syndrome, arthritis, autoimmune disorders, asthma. However, rarely serious reaction might occur such as severe allergic reactions to vaccine component.

Hepatitis A Vaccine

Hepatitis A child

Type of Vaccine: Inactivated

Minimum Age: 1 year

Dose: check the dose according to manufacturer.

Site of Administration: Infants and young children: anterolateral aspect of thigh. For older children and adolescent: deltoid muscle.

Route of Administration: Intramuscular

Hepatitis A Adult

Type of Vaccine: Inactivated

Minimum Age: According to manufacturer («Hep A 160» from 16 years of age, while» Hep A 1440» from 19 years).

Dose: 0.5 ml for Hep A 160, while for Hep A 1440 the recommended dose is 1 ml.

Site of Administration: Deltoid muscle

Route of Administration: Intramuscular

Number of Doses: 2 Doses

Hepatitis A Vaccine (contd.)

Schedule: This vaccine is given as 2 doses with minimum interval of 6 months.

Follow the updated national routine immunization schedule.

Precautions: Moderate or severe acute illness with or without fever and pregnancy.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Side Effects: Mild local reactions including: pain or redness at injection site more common in adults, headache is also reported in adults rarely in children. Hepatitis A vaccine is generally safe, but rarely serious reaction might occur such as severe allergic reactions to vaccine component.

Meningococcal Conjugate ACWY Vaccine

Type of Vaccine: Inactivated conjugate vaccine

Minimum Age: According to manufacturer.

Dose: 0.5 ml

Site of Administration: Infant: anterolateral aspect of thigh. Older children, adolescent and adults: deltoid muscle.

Route of Administration: Intramuscular

Number of Doses: Number of doses recommended depend on the age at first administration, manufacturer, type of vaccine and risk status. Booster doses might be considered every 5 years for certain categories remain at risk of infection (Sickle cell disease, certain hemaglobinopathies, congenital or acquired asplenia, pre-splenectomy, terminal complement deficiency and people with HIV) to be determined by treating physician.

Schedule: Follow the updated national routine immunization schedule.

Precautions: Moderate or severe acute illness with or without fever.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Side Effects: The vaccine is generally safe, but mild side effects can occur including: redness and pain at the injection site and sometime fever. However, rarely serious reaction might occur such as severe allergic reactions to vaccine component.

Rotavirus Vaccine

Type of Vaccine: Live attenuated viruses

Minimum Age: 6 Weeks

Dose: 1-2 mL depend on the manufacturer

Site of Administration: Orally

Route of Administration: Oral

Number of Doses: 2-3 doses according to manufacturer

Schedule: Follow the updated national routine immunization schedule.

Precautions:

- Moderate or severe acute illness with or without fever.
- Altered immunocompetence.
- Chronic gastrointestinal disease.
- Spina bifida or bladder exstrophy.

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
- Severe combined immunodeficiency (SCID).
- History of intussusception.
- Uncorrected congenital Gastrointestinal Tract malformation.

Side Effects: The vaccine is generally safe, but infants might become irritable, or have mild, temporary diarrhea or vomiting. Rarely intussusception might occur.

Typhoid Polysaccharide Vaccine

Type of Vaccine: Inactivated

Minimum Age: ≥2 years.

Dose: 0.5 ml

Site of Administration: Infant: anterolateral aspect of thigh. Older children, adolescent and adults: deltoid muscle.

Route of Administration: Intramuscular

Number of Doses: One dose to be repeated after 3 years if indicated.

This vaccine is usually given to people at occupational risk and travelers to endemic countries.

Doses and Schedule: Follow the updated national routine immunization schedule

Precautions: Moderate or severe acute illness with or without fever.

Contraindications: Allergy to any of the vaccine components or after a previous dose.

Side Effects: The vaccine is generally safe. If adverse events happened, it is mostly local adverse event. However rarely serious reaction might occuar such as severe allergic reaction to vaccine component.

Yellow Fever Vaccine

Type of Vaccine: Live attenuated virus

Minimum Age: ≥ 9month. In special situation infants 6-8 months might be given.

Dose: 0.5 ml

Site of Administration: Infant: anterolateral aspect of thigh. For older children, adolescent and adults: deltoid muscle.

Route of Administration: Subcutaneous.

Number of Doses: Single dose

Schedule: Offered to travelers to and from yellow fever endemic countries.

Precautions: Moderate or severe acute illness with or without fever.

Contraindications:

- Age younger than 6 months.
- Pregnancy.
- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
- Severe allergic reaction to egg protein.
- Severe combined immunodeficiency (SCID).

Side Effects: The vaccine is generally safe. Mild adverse events may follow vaccination such as headache, myalgia, low grade fever, pain at injection site, pruritus, urticaria and rash were reported in 25% of vaccine recipients. Serious adverse event might less commonly to rarely occur including immediate severe hypersensitivity or anaphylactic reactions and neurological disease. The danger of death from yellow fever is far more than the risks of vaccine side effects.

Pneumococcal polysaccharide Vaccine (PPSV)

Type of Vaccine: Inactivated

Minimum Age: ≥ 2 years

Dose: 0.5 ml

Site of Administration: For older children, Adolescent and adults: deltoid muscle.

Route of Administration: Intramuscular

Number of Doses: Single dose is recommended for ≥ 65 years. For high risk group ≥ 2 - 64 years with the following underlying conditions including (chronic heart disease, chronic lung disease, chronic renal failure Diabetes mellitus, chronic liver disease and also it is recommended for any adults at 19 through 64 years with asthma or current cigarette smoking. Single revaccination dose after 5 years is recommended for certain high risk groups including (sickle cell disease/other hemaglobinopathies, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, immunosuppression, solid organ transplant).

Schedule: Follow the updated national routine immunization schedule, high risk and elderly vaccination guidelines.

Whenever both pneumococcal conjugate and pneumococcal polysaccharide vaccines are

Pneumococcal polysaccharide Vaccine (PPSV) (contd.)

recommended to potential vaccine recipient, it is recommended to start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine with minimum interval of 8 weeks between them. However if patient received pneumococcal polysaccharide vaccine before to wait for one year prior to pneumococcal conjugate vaccine administration. If the most recent dose of PPSV23 was administered before age of 65 years , at age of 65 years or older, administer another dose of PPSV23 at least 5 years after the last dose PPSV23.

Precautions: Moderate or severe acute illness with or without fever.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Side Effects: The vaccine is generally safe, rarely serious reaction might occur such as severe allergic reactions to vaccine component. Mild local side effects, such as redness and pain at the injection site might occur in 30-50%, more commonly following subcutaneous administration than intramuscular administration. Less commonly vaccinated individual might get low grade fever.

Pneumococcal Conjugate Vaccine (PCV)

Type of Vaccine: Inactivated
Minimum Age: 6 Weeks
Dose: 0.5 ml
Site of Administration: Infant: anterolateral aspect of thigh. Older children and adult: deltoid muscle.
Route of Administration: Intramuscular
Number of Doses: Two doses and one booster dose are usually given routinely for children. For PCV13 one dose can be given to adults of certain risk categories and is recommended routinely for elderly above the age of 50 years.

Schedule: Follow the updated national routine immunization schedule, high risk and elderly vaccination guidelines. Whenever both pneumococcal conjugate and pneumococcal polysaccharide vaccines are recommended to potential vaccine recipient, it is recommended to start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine with minimum interval of 8 weeks between them. However if patient received pneumococcal polysaccharide vaccine before to wait for one year prior to pneumococcal conjugate vaccine administration.

Precautions: Moderate or severe acute illness with or without fever.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose PCV or to a vaccine component. For PCV13 allergy to any diphtheria toxoid-containing vaccine.

Side Effects: The vaccine is generally safe, but some severe allergic reactions to vaccine component might occur. Reaction at injection site, fever, irritability, decreased appetite, and increased/decreased sleep. Vomiting and diarrhea can occure. Serious reactions including hypersensitivity reactions are rarely and less commonly reported.

BCG Vaccine

Type of Vaccine: live attenuated bacteria
Minimum Age: At birth
Dose: For less than 1 year of age (0.05ml), for more than 1 year of age (0.1ml)
Site of Administration: Deltoid region preferably in the left site
Route of Administration: Intradermal
Storage: the vaccine should be stored at temperature between 2◦ C and 8◦ C and should not be exposed to direct sunlight or heat.
Number of Doses: Single dose.
BCG has established significant effectiveness, however protection has not been consistent against all forms of TB in all age groups. BCG also demonstrated effectiveness in preventing leprosy.
Schedule: Follow the updated national routine immunization schedule.
* BCG vaccine is given at birth to selected target (at risk infants including newborns of parents originally from TB endemic countries). Other categories determined by treating physician.
Contraindications: individuals is known to be allergic to any component of the vaccine, congenital immunodeficiency or SCID or immunodeficiency by immunosuppressive medication or malignancy, pregnancy, and HIV. Severe progressive dermatitis is considered temporary contraindication.
Side Effects: The vaccine is generally safe, serious reactions rarely occur. Most of the side effects are local reactions such as papule progress to ulceration leaving superficial scar, pain, redness and swelling at injection site and lymphadenitis. BCG vaccination should not be given to persons who are immunosuppressed (e.g. persons who are HIV infected). Disseminated BCG disease is seen mainly in persons with primary immunodeficiency or HIV infection.

Injectable Seasonal Influenza Vaccine

Type of Vaccine: Inactivated virus

Minimum Age: 6 months

Dose: 0.25 ml for age between 6 – 35 months and 0.5 ml if age 3 years or older.

Site of Administration: Infant: anterolateral aspect of thigh. Older children, adolescent and adults: deltoid muscle.

Route of Administration: Intramuscular

Number of Doses: 2 doses for children receiving influenza vaccine for the first time for those aged 6 months to 9 years. Then single dose thereafter.

Schedule: Follow the updated national routine immunization schedule and seasonal influenza guidelines. It is recommended for certain risk categories (children≥6 months and ≤ 5 years, adults/elderly ≥ 50 years and certain chronic medical conditions such as: chronic pulmonary diseases, chronic cardiovascular diseases, chronic renal diseases, chronic hepatic diseases, chronic hematological conditions, chronic metabolic disorders including diabetes mellitus, chronic neurologic and neurodevelopment conditions, Immune-suppressed individuals by medications or by disease condition, pregnant women, health care workers and other categories at risk determined by treating physician).

Injectable Seasonal Influenza Vaccine (contd.)

Precautions: Moderate or severe acute illness with or without fever. History of Guillain-Barre-Syndrome (GBS) within 6 weeks of previous influenza vaccine. Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, including egg protein.

Side Effects: Influenza vaccine is generally safe. Local reactions at injection site such as soreness, redness, or swelling might occur transiently. Other reactions including fever, malaise, myalgia might also occur. However rarely serious reaction such as severe allergic reactions to vaccine component might occur.

Haemophilus Influenza Type B (HiB) Vaccine

Type of Vaccine: Inactivated bacteria

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration: For infants at anterolateral aspect of the thigh. For older children and adults in the deltoid muscle.

Route of Administration: Intramuscular

Number of Doses: 3 doses and one booster dose.

This vaccine usually given at 2, 4 and 6 months and a booster dose at 18 months of age. The vaccine is not given routinely for children aged more than 5 years, however a single dose might be given for those ≥ 5 years of age with special health conditions (sickle cell disease, HIV/AIDS, after surgical removal of spleen, bone marrow transplant, or cancer treatment) according to risk estimation by treating physician.

Schedule: Follow the updated national routine immunization schedule.

Precautions: Moderate or severe acute illness with or without fever.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Side Effects: The vaccine is generally safe. Injection site pain and tenderness may occur and resolve spontaneously. Fever may also occur. However, rarely serious reaction might occur such as severe allergic reactions to vaccine component.

Human Papilloma Virus Vaccine

Type of Vaccine: Inactivated virus. Three types of vaccines: bivalent, quadrivalent and nonavalent.

Minimum Age: 9 years

Dose: 0.5 ml

Site of Administration: Deltoid muscle

Route of Administration: Intramuscular

Number of Doses: 2 doses for age 9-14 years and 3 doses from 15 years of age and above.

Schedule: 2 doses schedule (during initial visit and after 6 months),

3 doses: (during initial visit, second dose: 1 to 2 months after dose 1, third dose: 6 months after dose 1).

Precautions: Moderate or severe acute illness with or without fever and pregnancy.

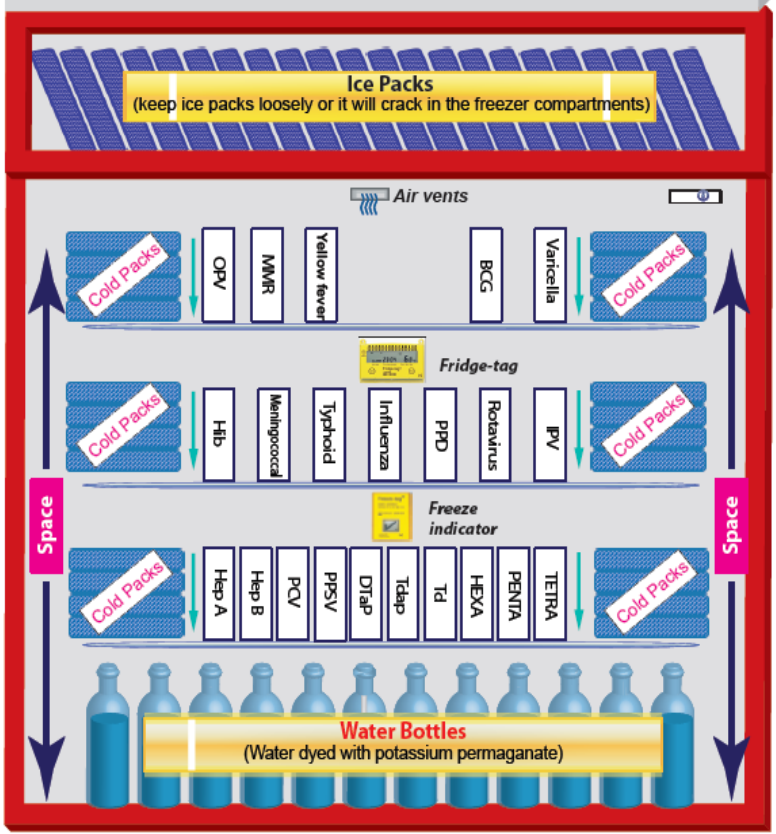
Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.

Side Effects: Vaccine are generally safe. Local reaction of pain, erythema and swelling at injection site is common with the three types of the vaccines. Fever and other mild reactions including headache, dizziness, myalgia, arthralgia and gastrointestinal symptoms of (nausea, vomiting, and abdominal pain) can occur following vaccination with the three types vaccines. Post-vaccination syncope and cluster vaccination anxiety has been reported. Serious adverse events attributable to the vaccine were rarely reported.

Vaccine Fridge Arrangement

Carefully organizing vaccines in a refrigerator helps to protect vaccines and facilitates vaccines management

1. Keep temperature between 2°C to 8°C.
2. Keep 4cm space on each side and back for air flow.
3. Use cold packs and sealed water bottles to stabilize temperature.
4. Place fridge tag in center of refrigerator away from coils, walls , floor and fan.
5. Place freeze indicator with freeze sensitive vaccine.
6. Keep vaccines in original boxes until ready for use.
7. Reconstitute vaccine just prior to administration.
8. Use only the vaccine's manufacturers supplied diluent.
9. Prime vaccine fridge prior to use.
10. Notify maintenance if adjustment is necessary
11. If power failure, activate approved contingency plan.
12. Administer vaccines using Auto-disabled syringes.
13. Rotate vaccine stock: vaccine expire first should be used first ("First In, First Out"), unless the VVM shows that they should be used first, even if they have a later expiry date



1. NO vaccine in freezer.
2. NO vaccines in refrigerator door.
3. NO vaccine in solid plastic trays or container.
4. NO expired vaccines in refrigerator.
5. NO vaccines with VVM reaching discarded point in the refrigerator.
6. NO opened vial without clear labels.
7. NO food in vaccine refrigerator .
8. Don't exchange diluents between vaccines..
9. Don't block air vents with vaccines.
10. Don't adjust vaccine fridge temperature control.
11. Don't unplug vaccine fridge or break circuit.
12. Don't keep vaccine in direct contact with cold or iced packs.

WARNING!

Do not unplug the vaccine fridge or break circuit.

Expensive vaccine in storage.

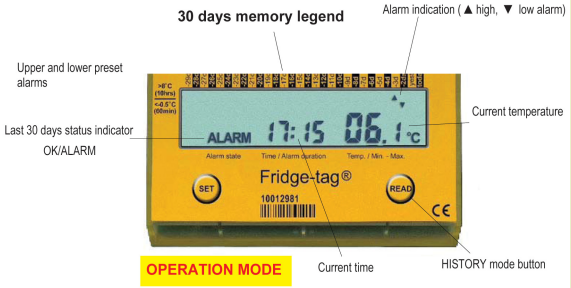
In the event of electrical problem, immediately contact:

Maintenance

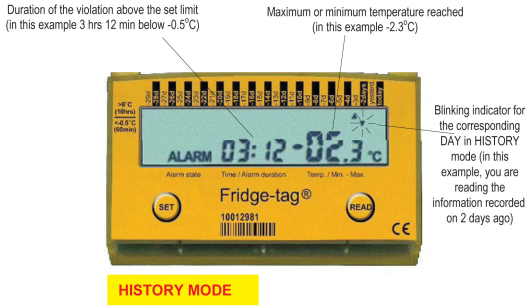
STOP

Do NOT adjust the VACCINE FRIDGE temperature controls! Notify *Maintenance* if adjustment is necessary.

HOW TO READ FRIDGE-TAG?

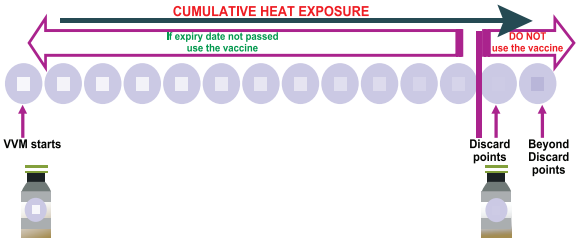


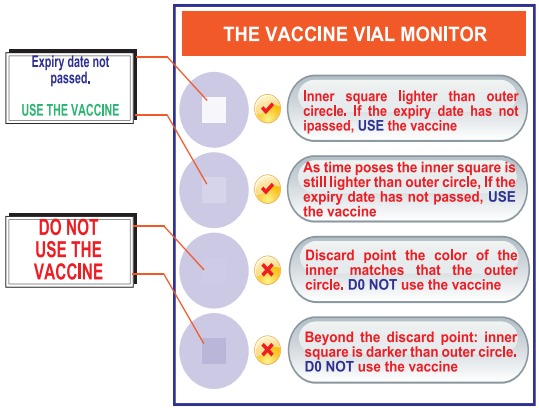
OPERATION MODE



HISTORY MODE

HOW TO USE VVM?





SHAKE TEST: was designed to detect freeze damage in aluminum-based, adsorbed, freeze sensitive vaccines such as DTP, DT, Td, DTaP, Tdap, PCV, Hep B, Hep A, Hexavalent, Pentavalent and Tetravalent vaccines

When to conduct shake test



How to perform the "Shake Test"

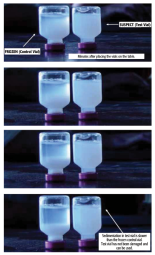
Step 1. Select one sample from each type and batch of "SUSPECT" vaccine. Freeze a vial until it is solid; this will be your control vial – call it "FROZEN".

Step 2. Allow FROZEN vial to thaw completely.

Step 3. Select one sample of each vaccine you suspect has been frozen – call it "SUSPECT".

Step 4. Shake FROZEN and SUSPECT vials for 20 second.

Step 5. Observe FROZEN and SUSPECT vials side-by side on aflat surface to compare how they sediment (5-15 minutes).



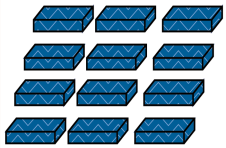
IF	THEN .....
IF SUSPECT **vial sediments slower than FROZEN vial** 	 → **USE VACCINE**  Fully Potency
IF SUSPECT vial sediments at the same rate as or faster than **FROZEN** vial	 → **DO NOT USE VACCINE**  Diminished Potency

A Shake Test must be performed for each separate type and batch of vaccine.

HOW TO PREVENT FREEZE DAMAGE TO VACCINES ?

1. Keep temperatures between 2°C and 8°C at all times
2. Check and record temperatures at least twice daily.
4. Do not store vaccines in front of the refrigeration cold air stream.
5. Condition frozen Ice Pack until you can hear water when you shake them prior to use for transport of vaccine.
6. Transport vaccines by prequalified cold chain pox with monitors

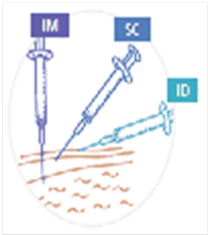
Freeze sensitivity	Vaccines
Most sensitive	DTaP
	DTaP-hepatitis B-Hib-IPV (hexavalent)
	DTwP
	DTwP-hepatitis B-Hib (pentavalent)
All these vaccines are damaged by freezing	Hepatitis A
	Hepatitis B
	Human papillomavirus
	Pneumococcal (polysaccharide-protein conjugate)
	TT, DT, Td
	Influenza (inactivated, split)
	Hib (liquid)
Least sensitive	Inactivated poliovirus
	Typhoid polysaccharide



Properly condition ice packs

ROUTE OF ADMINISTRATION

- **Oral**
  - Oral Polio Vaccine
  - Rotavirus
- **intramuscular (IM)**
  - DTwP, DTaP, DT, Td, TT
  - Hepatitis B
  - Hepatitis A
  - Inactivated Polio
  - Hexavalent
  - Pentavalent
  - Tetravalent
  - Pneumococcal Conjugate (PCV)
  - Inactivated influenza
  - Typhoid polysaccharide
  - Meningococcal ACWY conjugate vaccine
- **Subcutaneous (SC)**
  - Varicella
  - MMR
  - Yellow Fever
- **Intradermal (ID)**
  - BCG



Multi-dose Vial Policy (MDVP)

BCG	discarded at the end of the immunization session, or within six hours of opening whichever comes first.
OPV	7 days
DT child	7 days

** Time and date should be mentioned on the opened vials

Vaccine may be used up to and including the expiration date.