KINGDOM OF BAHRAIN

Ministry of Health

مَمْلَكَةُ البَحْرَيْن

وَزَارَةُ الصِّحَّة

IMMUNIZATION SUMMARY GUIDE BOOKLET

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

5th Edition 2023

This work was accomplished through the team work of the Immunization group - Disease Control Section Public Health Directorate

Approved by:

Immunization Committee Chair and Members

Recommended Immunization Schedule for the Kingdom of Bahrain

CHILDREN		
AGE	**VACCINE**	**DOSE**
At birth	Bacillus Calmette Guerin (BCG) for newborns born to parents originally from endemic countries.	Single Dose
	Child Hepatitis B for newborns.	Birth Dose
2 months	Diphtheria and Tetanus toxoid with Pertussis, Haemophilus Influenzae type b, hepatitis B, Inactivated Polio vaccine (DTaP-Hib-Hep B-IPV) (as Hexavalent).	1st Dose
	Pneumococcal Conjugate (PCV).	1st Dose
	Rotavirus vaccine (oral).	1st Dose
4 months	Diphtheria and Tetanus toxoid with Pertussis, Haemophilus Influenzae type b, hepatitis B and Inactivated Polio vaccine (DTaP-Hib-Hep B-IPV) (as Hexavalent).	2nd Dose
	Oral Polio Vaccine (OPV).	2nd Dose
	Pneumococcal Conjugate (PCV).	2nd Dose
	Rotavirus vaccine (oral).	2nd Dose
6 months	Diphtheria and Tetanus toxoid with Pertussis, Haemophilus Influenzae type b and hepatitis B vaccine (DTP-Hib-Hep B) (as Pentavalent).	3rd Dose
	Oral Polio Vaccine (OPV).	3rd Dose
12 months	Measles, Mumps, Rubella (MMR).	1st Dose
	Varicella (Chickenpox).	1st Dose
15 months	Pneumococcal Conjugate (PCV).	Booster
	Child Hepatitis A.	1st Dose
18 months	Measles, Mumps, Rubella (MMR).	2nd Dose
	Tetravalent (DPT, Hib) or Pentavalent (DTP-Hib-Hep B) according to availability.	1st Booster
	Oral Polio Vaccine (OPV).	1st Booster
2 years	Meningococcal ACWY-135 Conjugate.	Single Dose
	Child Hepatitis A.	2nd Dose
3 years	Varicella (Chickenpox).	2nd Dose

Recommended Immunization Schedule for the Kingdom of Bahrain

AGE	VACCINE	DOSE
4-5 years	Diphtheria and Tetanus toxoid with Pertussis vaccine and Inactivated Polio (DTaP-IPV) (as Tetravalent).	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		
13 years	Tetanus, diphtheria toxoid, acellular pertussis vaccine (Tdap).	Booster
12-13 years	Human Papilloma Virus (HPV)	2 Doses (6 months apart)
FOR PREVIOUSLY UNIMMUNISED WOMEN AT REPRODUCTIVE AGE GROUP		
Tetanus and diphtheria Toxoid (Td)	At first contact Td1.	Td1
	At least 4 weeks after Td1.	Td2
	At least 6 months after Td2.	Td3
	One year after Td3.	Td 1st Booster
	One year after Td 1st Booster.	Td 2nd Booster
Tdap	One dose of Tdap in the second or third trimester can replace one dose of Td.	
ADULT, ELDERLY AND HIGH-RISK GROUPS		
Pneumococcal Conjugate vaccine (PCV)	Single dose for adult ≥ 50 years and high-risk groups.	
Pneumococcal Polysaccharide vaccine	• Single dose for adults at age of ≥ 65. • Single dose for High-risk, group ≥ 2-64 years. • Single revaccination dose after 5 years recommended to at risk groups including (Sickle cell disease/other blood disorders, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, malignancy, leukemia, lymphoma, iatrogenic immunosuppression, solid organ transplant). In addition, certain high-risk people vaccinated when younger than age 65 years will need a second dose 5 years later.	
Tetanus, diphtheria toxoid, acellular pertussis vaccine (Tdap)	Single dose to individuals at higher risk of infection and to elderly above 65 years.	

Recommended Immunization Schedule for the Kingdom of Bahrain

Seasonal Influenza vaccine	Recommended in every season to certain categories at risk of infection including: • Children ≥6 months and ≤ 5 years, • Adults/elderly ≥ 50 years, • Certain chronic medical conditions including chronic pulmonary diseases, chronic cardiovascular diseases, chronic renal diseases, chronic hepatic diseases, chronic blood disorders, 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 • Other categories at risk to be determined by treating physician.
Varicella vaccine	Recommended to at risk groups. Two doses, 3 months apart from 1 -12 years of age and as 2 doses 4 weeks apart for ≥ 13 years of age.
Meningococcal ACWY-135 Conjugate vaccine	• Single dose to certain high-risk groups and travelers to Holly places, meningitis belt countries and countries reporting outbreak. • Booster dose every 5 years given to certain categories remain at risk of infection such as anatomical asplenia or functional (including sickle cell disease), persistent complement component deficiency and people with HIV infection.
Haemophilus Influenza type b vaccine (Hib)	Single dose for >5 years of age having any of the following conditions: • Anatomical or functional asplenia (including sickle cell disease), post bone marrow transplant and certain cancer after completion of treatment.
HAJIIs	
Meningococcal ACWY-135 Conjugate vaccine	• Single dose. • Booster doses every 5 years recommended for hajj pilgrims and certain categories at risk of infection.
Seasonal Influenza vaccine	Recommended for every season.

OTHER VACCINES		
Travelers (according to travel destination)	Yellow Fever	Single dose.
	Typhoid fever polysaccharide	Single dose (typhoid polysaccharide is repeated after 3 years if indicated).
	Hepatitis A	2 doses (if not vaccinated previously).
	Meningococcal ACWY-135 Conjugate	Single dose for traveler to certain countries.
	Oral Polio (OPV)/ Inactivated Polio (IPV)	Booster dose for traveler to Polio endemic/ Polio reporting countries.
Post exposure prophylaxis (depend on exposure and risk category)	Rabies	4 doses of vaccine ± RIG Rabies Immunoglobulin (according to wound category and risk estimation).
Individuals at risk of hepatitis (household and sexual contacts of chronic Hepatitis B cases and/ or Hepatitis C cases)	Hepatitis B	3 doses (if not vaccinated previously).
	Hepatitis A	2 doses (6 months apart between two doses).
Immune-compromised and their household contacts	Inactivated Polio Vaccine (IPV)	4-5 doses (as replacement of the OPV in the routine schedule).
*Other vaccines for high risk/ special groups determined by assessment of risk status by treating physician.		

Recommended Vaccination for Special Risk Groups

Disease Condition	Recommended Vaccines	Number of Doses
Diabetes Mellitus	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal Polysaccharide (PPSV)	Single dose
	Hepatitis B	3 doses
	Inactivated Seasonal Influenza	Single dose in 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	Single dose in every season
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series
Chronic Renal Failure including Renal Dialysis	Hepatitis B	3-4 doses
	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal Polysaccharide (PPSV)	Single dose and single revaccination dose after 5 years
	Inactivated Seasonal Influenza	Single dose in every season
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series

Recommended Vaccination for Special Risk Groups

Disease Condition	Recommended Vaccines	Number of Doses
Chronic Liver Disease	Hepatitis B	3 doses
	Hepatitis A	2 doses
	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal Polysaccharide (PPSV)	Single dose
	Inactivated Seasonal Influenza	Single dose in every season
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series
Chronic Lung Disease including Bronchial Asthma	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal Polysaccharide (PPSV)	Single dose
	Inactivated Seasonal Influenza	Single dose in every season
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series
Sickle cell disease patients. Patients with functional or anatomical asplenia and pre- splenectomy	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal Polysaccharide (PPSV)	Single dose and single revaccination dose after 5 years.
	Hepatitis B	3 doses
	Meningococcal ACWY conjugate	Single dose, booster doses every 5 years (according to manufacturer)
	Inactivated Seasonal Influenza	Single dose in every season
	Haemophilus influenza type b (Hib) for those >5 years of age	Single dose
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series

Recommended Vaccination for Special Risk Groups

Disease Condition	Recommended Vaccines	Number of Doses
Cochlear implants	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal Polysaccharide (PPSV)	Single dose
HIV (determined by treating physician)	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal Polysaccharide (PPSV)	Single dose and single revaccination dose after 5 years
	Meningococcal ACWY conjugate	Single dose, booster doses every 5 years (according to manufacturer)
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series
	Inactivated Seasonal Influenza	Single dose in every season
	Hepatitis B	3 doses
Immunocompromised by malignancy/ Post	Refer to oncology and Post Bone marrow transplant guidelines,	
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 decide about the need of repeating vaccination series for non-immune).
	Pneumococcal conjugate vaccine	One dose

Recommended Vaccination for Special Risk Groups

Disease Condition	Recommended Vaccines	Number of Doses
Post solid organ transplant (to be determined by treating physician) (Cont.)	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.

- **Pneumococcal vaccine:** To start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine (PPSV) (the minimum interval is 8 weeks). However, if the patient received pneumococcal polysaccharide vaccine previously, wait for one year then administer the pneumococcal conjugate vaccine. If the most recent dose of (PPSV) was administered before the age of 65 years, administer another dose of (PPSV) at least 5 years after the last dose of the same vaccine (PPSV) (only one dose of PPSV is recommended after the age of 65 years).
- **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 other categories determined by healthcare providers.
- **Hepatitis A vaccine**: Is given according to routine schedule and if otherwise indicated.

Recommended Ages and Intervals between Doses of Routine Vaccines

Vaccine and 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	—
DTP-6 (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	21 months	—
Hepatitis B HepB-Birth -1	Birth	Birth	4 weeks
HepB-2	1-2 months	4 weeks	8 weeks
HepB-3	6 - 18 months	24 weeks	—

Recommended Ages and Intervals between Doses of Routine Vaccines

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Poliovirus, Inactivated **IPV-1**	2 months	6 weeks	4 weeks
IPV-2	4 months	10 weeks	4 weeks
IPV-3	6 months	14 weeks	6 months
IPV-4	18 months	12 months	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 Ages and Intervals between Doses of Routine Vaccines

Vaccine and 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
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	—
Varicella Var-1	12 months	12 months	12 weeks (For those <13 years) 4-6 weeks (for ≥13 years)
Var-2	3 years	15 months	—

Recommended Ages and Intervals between Doses of Routine Vaccines

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Pneumococcal polysaccharide PPSV-1	2 years (For certain high-risk groups)	2 years	5 years (For certain high risk groups including sickle cell disease/ other hemoglobinopathy, congenital or acquired asplenia, congenital or acquired immuno-deficien cies, chronic renal failure, nephrotic syndrome, hematological malignancy, iatrogenic immunosuppres sion, solid organ transplant
PPSV-2	7 years	—	—
Measles- Mumps-Rubella MMR-1	12 months	12 months	4 weeks
MMR-2	18 months	13 months	—
Meningococcal conjugate ACWY (MCV4)-1	2 years	2 years Depend on manufacturer, type of vac-cine and risk category	5 years (Depending on manufacturer, type of vaccine and risk category including sickle cell diseases, asplenia and complement deficiency)

Recommended Ages and Intervals between Doses of Routine Vaccines

Vaccine dose number	Recommend-ed age for this dose	Minimum age for this dose	Minimum interval to next dose
Inactivated Influenza	≥ 6 months	6 months	4 weeks (children 6 months to 9 years of age receiving influenza vaccine for the first time, it is recommended to receive 2nd dose)
Human papillomavirus (Two-dose-series) HPV-1	11-12 years	9 years	4 weeks
HPV-2	11-12 years (+ 2 months)	9 years (+ 4 months)	12 weeks
HPV-3	11-12 years (+ 6 months)	9 years (+ 5 months)	—

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

Spacing of Live and Inactivated Antigens

Antigen Combination	Recommended minimum interval between doses
Two or more inactivated	Can be given simultaneously or with any interval between doses.
Inactivated and live	Can be given simultaneously or with any interval between doses.
Two or more live injectable	4-weeks minimal interval if possible. If not, should be administered simultaneously at different sites.
Live injectable and live oral	Can be given simultaneously or with any interval between doses.

Spacing of 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	Shouldn't be given simultaneously. 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	0.1 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	0.50 mL/kg (80 mg IgG/kg) IM	6

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)
IGIV	Post exposure measles prophylaxis for Immunocompromised contact	400 mg/kg IV	8
	Post exposure varicella prophylaxis	400 mg/kg IV	8
	Immune thrombocytopenic purpura treatment	400 mg/kg IV	8
		1000 mg/kg IV	10
	Replacement therapy for immune deficiencies	300–400 mg/ kg IV	8
	Kawasaki disease	2 g/kg IV	11
Blood transfu-sion	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

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)
Monoclonal antibody to respiratory syncytial virus F protein		15 mg/ kg IM	None

* Vaccination with rubella containing vaccine 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. • Hypersensitivity to yeast.	• Moderate or severe acute illness with or without fever.
Rotavirus	• Severe allergic reaction after a previous dose or to a vaccine component. • History of intussusception. • Uncorrected congenital Gastrointestinal tract malfomation. • Severe combined Immunodeficiency (SCID)	• Moderate or severe acute illness with or without fever. • Altered immunoconmpetence other than SCID. • Choronic geastrointestinal 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.
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

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.
Diphtheria, tetanus, pertussis (DTaP). **Tetanus, diphtheria, pertussis (Tdap).** **Tetanus, diphtheria (DT, Td).**	• Severe allergic reaction after a previous dose or to a vaccine component. • For pertussis-containing vaccines: Encephalopathy or Evolving brain disease (e.g., coma, decrease level of consciousness, prolonged seizure) 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 diphtheria or tetanus toxoid-containing vaccine; delay vaccine at least 10 years since last dose. • For pertussis-containing vaccines: progressive or unstable neurologic disorder including: infantile spasms, uncontrolled seizures, delay until neurologically stable and the neurological status verified.

Guide to Contraindications and Precautions to Commonly Used Vaccines

Vaccine	Contraindications	Precautions
Oral poliovirus vaccine	• Severe allergic reaction after a previous dose or to a vaccine component. • Severe immunodeficiency by disease or medication (malignancy, chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or HIV infection, family history of first degree relative with congenital or hereditary immune deficiency unless the immune status of individual is verified). • 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. • Severe immunodeficiency by disease or medication (malignancy, chemotherapy, congenital immunodeficiency, or long-term immunosuppressive	• 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.

Guide to Contraindications and Precautions to Commonly Used Vaccines

Vaccine	Contraindications	Precautions
Measles, Mumps, Rubella (MMR) (Cont.)	• Family history of first degree relative with congenital or hereditary immune deficiency unless the immune status of individual is verified). • Pregnancy.	• 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).
Varicella	• Severe allergic reaction after a previous dose or to a vaccine component. • Severe immunodeficiency by disease or medication (malignancy, chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or HIV infection who are severely immunocompromised, family history of first degree relative with congenital or hereditary immune deficiency unless the immune status of individual is verified). • Pregnancy.	• Moderate or severe acute illness with or without fever. • Recent 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; avoid use of these antiviral drugs for 14 days after vaccination. • Use of aspirin or aspirin containing products.

Guide to Contraindications and Precautions to Commonly Used Vaccines

Vaccine	Contraindications	Precautions
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.	• 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, e.g., angioedema or respiratory distress.
Human papillomavirus (HPV)	• Severe allergic reaction after a previous dose or to a vaccine component, including yeast.	• Moderate or severe acute illness with or without fever. • Pregnancy
Meningococcal ACWY-135 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.

Guide to Contraindications and Precautions to Commonly Used Vaccines

Vaccine	Contraindications	Precautions
Yellow Fever Vaccine	• Severe allergy to any of the vaccine components including eggs, chicken proteins, or gelatin, or severe allergic reaction to a previous dose of the vaccine. • Immunodeficiency • Pregnancy.	• Moderate or severe acute illness with or without fever.
Typhoid polysaccharide vaccine	• Severe 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	• Severe allergy to any of the vaccine components or to a previous dose of the vaccine.	• Moderate or severe acute illness with or without fever.

Pre vaccination Screening questions:

1. Is the child/individual requesting the vaccine sick today?	1. هل الطفل أو البالغ الراغب في تلقي التطعيم مريض اليوم؟
2. Does he/she has allergies to medications, food, or any vaccine?	2. هل هو/هي يعاني من حساسية من الأدوية أو الأطعمة، أو أي لقاح؟
3. Has a serious reaction to a vaccine occurred in the past?	3. هل حدثت أعراض جانبية شديدة للتطعيم في السابق؟
4. Has he/she had a seizure or CNS problem?	4. هل هو/هي مصاب بالصرع، أو أي أمراض أخرى في الجهاز العصبي؟
5. Does he/she (or one of the household contacts) have cancer, leukemia, AIDS, or any other immune system problem?	5. هل يعاني هو/هي أو أحد أفراد أسرته من أمراض سرطانية، مرض سرطان الدم اللوكيميا، قصور في المناعة، أو مرض نقص المناعة المكتسبة، أو أي أمراض أخرى للجهاز المناعي؟
6. Has he/she taken immunosuppressive medication such as cortisone, prednisone, other steroids, or chemotherapy, or had radiotherapy in the past 6 months?	6. هل هو/هي يتناول أدوية مثبطة للمناعة، كأدوية الكورتزون، أو العلاج الكيميائي، أو تم علاجه بالعلاج الإشعاعي خلال الأشهر السابقة؟
7. Has the individual requesting the vaccine received a transfusion of blood or blood products, or immunoglobulin in the past year?	7. هل تلقى الراغب في التطعيم نقل دم أو نقل لأحد مكونات الدم أو الأمصال في العام الماضي؟
8. Is she pregnant or is there a chance she could become pregnant during the next month?	8. هل من الممكن أن تكون الفتاة حامل أو تخطط للحمل في الشهر القادم؟
9. Has individual requesting the vaccine received vaccinations in the past 4 weeks?	9. هل تلقى الراغب في التطعيم أي تطعيم خلال الأربعة أسابيع السابقة؟

Multi-Dose Vaccine Vial Policy

Vaccine	Time from opening the vaccine vial until discard
BCG	Discard at the end of the immunization session, or six hours from opening the vaccine vial (whichever comes firt)
OPV	7 days
DT child	7 days

* Time and date should be mentioned on the opened vials.
** Check expiry date and vaccine vial monitor (VVM) status prior to use of any vaccine. Don't use the vaccine if VVM reach discard point or vaccine expired

BCG Vaccine

Type of Vaccine: Live attenuated bacterial vaccine.

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: Upper arm preferably in the left site.
Route of Administration: Intradermal.

Storage: The vaccine should be stored at temperature between 2^{O} C to 8^{O} C and should not be exposed to direct sunlight or heat.

Number of Doses: Single dose.
BCG vaccine demonstrated protective effect against TB meningitis and disseminated TB. However, protection against all forms of TB in all age groups has not been consistent. In addition, the vaccine showed effectiveness in preventing leprosy.

Schedule: The vaccine is recommended to infants born to parents originally from TB or leprosy endemic countries. Also given to neonate born to parents (or other household close contact) with current smears positive pulmonary TB.
The vaccine might be given to other risk categories based on assessment by treating physician. Follow the updated national routine immunization schedule.

Contraindications: Individuals with severe allergic reactions to any component of the vaccine, congenital immunodeficiency or SCID or immunodeficiency by immunosuppressive medication or malignancy, pregnancy, and HIV. However, if HIV- infected individuals, including children receiving anti-retroviral therapy, are clinically and immunologically stable they may be given the vaccine if indicated with fitness certificate from their treating physician.

Side Effects: The vaccine is generally safe, serious reactions may rarely occur. Most of the side effects are local reactions such as papule which may ulcerate leading to superficial scar after healing. Severe local reactions including injection site abscess, ulceration or regional suppurative lymphadenitis can occur due to injection of the vaccine sub-cutanously. Systemic reactions in the form of disseminated BCG disease occurs rarely mainly among patients with primary immune-deficiencies and HIV infection. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Varicella (chickenpox) Vaccine

Type of Vaccine: Live attenuated virus.

Minimum Age: 12 months.

Dose: 0.5 ml.

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.
Route of Administration: Subcutaneous (SC).

Number of Doses: 2 Doses.

Schedule: The vaccine is recommended routinely at 12 months and at 3 years. It is given as two doses; for children at 1 -12 years of age separated by 3 months, for individuals more than or equal to 13 years of age separated by 4 weeks.
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). Receipt of specific antivirals
(i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination, if possible; delay resumption of these antiviral drugs 14 days after vaccination.

Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Severe immunodeficiency by disease or medication (malignancy, chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or HIV infection who are severely immunocompromised, family history of first degree relative with congenital or hereditary immune deficiency unless the immune status of individual is verified). Pregnancy and women should avoid getting pregnant for at least one month after vaccination.

Side Effects: The vaccine is generally safe. Local reactions including pain, redness, swelling and varicella-like rash at the injection site, fever and varicella-type rash can occur. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

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

Diphtheria, Tetanus, Pertussis (DTP/DTaP)

Type of Vaccine: Diphtheria and Tetanus toxoids and inactivated Pertussis bacteria.

Minimum Age: 6 Weeks for DTP/ DTaP/ DT and Tdap vaccine according to manufacturer.

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.

Route of Administration: Intramuscular.

Number of Doses: 3 doses and 3 boosters.
DT vaccine is replacing DTP/ DTaP 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 are recommended to provide longer protection.

Schedule:
For children less than 7 years: It is given as DTP / DTaP as part of combination vaccine. 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 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 (Tetanus toxiod containing vaccine) dose received, then an interval of at least 6 months is recommended between the 2nd and 3rd doses.
Follow the updated national routine immunization schedule.

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

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 diphtheria or tetanus toxoid-containing vaccine; delay vaccine at least 10 years since last dose.
In addition for Pertussis-containing Vaccines Precautions includes: Progressive or unstable neurologic disorder including infantile spasms, uncontrolled seizures, the vaccine should be delayed until neurologically stable and the neurological status verified. In addition, if any of the following occur within 48 hours of previous Vaccination:

- 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 previous dose of DTP/DTaP.

Contraindications: Severe allergic reaction after a previous dose or to a vaccine component. Encephalopathy (e.g. coma, decreased level of consciousness, or prolorged seizures) within 7 days of administration of previous dose of pertussis containing vaccine, not attributable to another identifiable cause.

Side Effects: Local reactions including pain and erythema. Mild systemic reactions in the form of fever, body aches and malaise, nodules and sterile abscess rarely reported. The severity and the occurrence of both local and systemic reactions increase with increasing the number of vaccine doses administered previously. Febrile seizures, persistent crying lasting for 3 hours or longer, and hypotonic- hyporesponsive episodes have been reported after administration of DTaP but occur less frequently than among children who received whole- cell DTP. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Haemophilus Influenza Type b (Hib) Vaccine

Type of Vaccine: Inactivated bacteria.

Minimum Age: 6 Weeks.

Dose: 0.5 ml.

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.

Route of Administration: Intramuscular

Number of Doses: 3 doses and one booster dose given routinely to children less than 5 years.
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: anatomical or functional asplenia (including sickle cell disease), post bone marrow transplant and certain
cancer after completion of treatment) and according to risk estimation by treating physician.

Schedule: The vaccine is given routinely at 2, 4, 6 months and booster dose at 18 months.
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, tenderness, and fever are reported. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Hepatitis A Vaccine

Hepatitis A child

Type of Vaccine: Inactivated virus.

Minimum Age: 12 months up to 18 years.

Dose: 0.5 ml (check the dose according to manufacturer).

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.

Route of Administration: Intramuscular

Hepatitis A Adult

Type of Vaccine: Inactivated virus.

Minimum Age: 19 years of age and older.

Dose: 1 ml (check the dose according to manufacturer).

Site of Administration: Deltoid muscle.

Route of Administration: Intramuscular.

Number of Doses: 2 Doses.

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: Hepatitis A vaccine is generally safe. Local reactions including pain, redness or swelling at injection site are more common in adult. Other symptoms including fatigue, malaise, and fever were reported. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information about the vaccine.*

Hepatitis B Vaccine

Hepatitis B Child

Type of Vaccine: Inactivated / Recombinant vaccine.

Minimum Age: Birth.

Dose: 10 µg (0.5 ml).

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.

Route of Administration: Intramuscular.

Number of Doses: 3 doses.

Schedule: Follow the updated national routine immunization schedule. The vaccine is given routinely at birth, 2, 4, 6 months. Birth dose is recommended for all newborn 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.

Hepatitis B Adult

Type of Vaccine: Inactivated

Minimum Age: According to manufacturer.

Dose: 20 µg (1 ml).

Site of Administration: Deltoid muscle

Route of Administration: Intramuscular

Precautions: Moderate or severe acute illness with or without fever. For premature low birth weight <2000g the birth dose should not be counted. However, they should receive the other doses as per the national schedule.

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 fever can occur. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Poliomytelitis 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: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.
Route of Administration: Intramuscular
Number of Doses for polio vaccines (OPV/IPV): 3 doses and 2 boosters. The vaccine is given routinely 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.
Precautions: Moderate or severe acute illness with or without fever.

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

Side Effects:
Oral polio (OPV): The most serious rare adverse reaction is vaccine associated paralytic poliomyelitis (VAPP).
Inactivated polio (IPV): The vaccine is generally safe vaccine. Local reactions include redness and soreness at the site of injection. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information about the vaccine.*

Measles, Mumps, Rubella (MMR) Vaccine

Type of Vaccine: Live attenuated viruses.

Minimum Age: 12 Months

Dose: 0.5 ml.

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.

Route of Administration: Subcutaneous

Number of Doses: The vaccine is given routinely to children at the age of 12 months and 18 months. It can be given as 2 doses with minimum interval of 4 weeks to susceptible individuals at other age group provided no contraindication.

Schedule: This vaccine is given routinely to children at 12 months and 18 months. It is given to non-immune woman during premarital counselling and given postnatally to rubella non-immune pregnant women. In addition, the vaccine is given to certain health care workers and others at risk of infection.
Follow the updated national routine immunization schedule.

Precautions: Moderate or severe acute illness with or without fever, recent receipt (within 11 months) of antibody-containing blood product (Specific interval depends on the type of the product refer to the table at pages 19, 20 and 21), history of thrombocytopenia or thrombocytopenic purpura and if there is need for tuberculin skin testing.

Contraindications: Severe allergic reaction after a previous dose or to a vaccine component. Severe immunodeficiency by disease or medication (malignancy, chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or HIV infection who are severely immunocompromised, family history of first degree relative with congenital or hereditary immune deficiency unless the immune status of individual is verified), pregnancy. In addition, women at childbearing age should avoid pregnancy for 4 weeks after vaccination.

Side Effects: MMR vaccine is generally safe. Adverse reactions including fever, rash, parotitis, lymphadenopathy, arthralgia and thrombocytopenia were reported. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Meningococcal Conjugate ACWY Vaccine

Type of Vaccine: Inactivated bacteria.

Minimum Age: According to manufacturer.

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.

Route of Administration: Intramuscular

Number of Doses: The vaccine is given routinely to children at the age of 2 years. The number of doses recommended depends on the age at first administration, manufacturer, type of vaccine and risk status. Booster doses every 5 years are given to Hajj pilgrims and certain categories at risk of infection such as: functional or anatomical asplenia (including sickle cell disease), persistent complement component deficiency and HIV patients.

Schedule: This Vaccine is geven routinely to children at 2 years. 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. Adverse reactions include redness, pain at injection site and fever were reported. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information about the vaccine.*

Pneumococcal Conjugate Vaccine (PCV)

Type of Vaccine: Inactivated bacteria.

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of the thigh for infants. Deltoid muscle for older children and adults.

Route of Administration: Intramuscular

Number of Doses: Two doses and one booster dose of PCV are given routinely to children. One dose of PCV13 can be given for adults
of certain risk categories and elderly.

Schedule: The vaccine is given routinely at the age of 2, 4 months and one booster dose at 15 months. In addition, single dose for adult ≥ 50 years and high-risk groups is recommended.
*Whenever both pneumococcal conjugate and pneumococcal polysaccharide vaccines are recommended to any individuals, it is advised to start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine with minimum interval of 8 weeks between them. However, if any individual received pneumococcal polysaccharide vaccine previously, then one year should pass prior to administration of pneumococcal conjugate vaccine.
Follow the updated national routine immunization schedule and guidelines for adult, elderly, and special risk group vaccination.

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

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

Side Effects: The vaccine is generally safe. Adverse reactions including pain, redness and swelling at injection site, fever, irritability, decreased appetite were reported. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Pneumococcal polysaccharide Vaccine (PPSV)

Type of Vaccine: Inactivated bacteria
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, Diabetes mellitus, chronic liver disease, chronic kidney disease, sickle cell diseases and 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 anatomical or functional asplenia (sickle cell disease and other hemoglobinopathies), congenital or acquired immuno- deficiencies (complement deficiencies, HIV), chronic renal failure, nephrotic syndrome, immunosuppression, solid organ transplant. In addition, certain high-risk people vaccinated when their age is less than 65 years will need a second dose after 5 years. Only one dose of PPSV is recommended after the age of 65 years.

Schedule: Follow the updated national routine immunization schedule and guidelines for adult, elderly, and special risk group vaccination.
*Whenever both pneumococcal conjugate and pneumococcal polysaccharide vaccines are recommended to any individuals, it is recommended to start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine with minimum interval of 8 weeks between them. However, if any individual received pneumococcal polysaccharide vaccine before then one year should pass prior to administration of pneumococcal conjugate vaccine.

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. Adverse reactions including pain, redness and swelling at injection site, fever and myalgia might occur. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information about the vaccine.*

Rotavirus Vaccine

Type of Vaccine: Live attenuated virus

Minimum Age: 6 Weeks

Dose: 1-2 mL depending on the manufacturer

Site of Administration: Oral cavity

Route of Administration: Oral

Number of Doses: 2-3 doses according to manufacturer

Schedule: The vaccine is given routinely at the age of 2 and 4 months. Follow the updated national routine immunization schedule.

Precautions:
- Moderate or severe acute illness with or without fever.
- Altered immunocompetence other than SCID.
- Chronic gastrointestinal disease.
- Spina bifida or bladder exstrophy.

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

Side Effects: The vaccine is generally safe, but infants might become irritable, or have mild, temporary diarrhea or vomiting. Rarely serious side effect such as severe allergic reactions to vaccine component might occur. Also, intussusception might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Hexavalent (DTaP, Hib, Hepatitis B, IPV) 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 and inactivated poliomyelitis vaccine).

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of the thigh for infants and deltoid muscle for older children.

Route of Administration: Intramuscular.

Doses and Schedule: The vaccine is given routinely at the age of 2 and 4 months. Follow the updated national routine immunization schedule.
Precautions: Refer to the precautions of individual vaccine.

Contraindications:

- Severe allergic reaction after a previous dose or to a vaccine component.
- Encephalopathy (e.g., coma, decrease level of consciousness, prolong seizure) within 7 days of administration of previous dose of DTP or DTaP, not attributable to another identifiable cause.

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

* *The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information about the 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 the thigh for infants and deltoid muscle for older children.

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.
- Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP or DTaP.

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

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Tetravalent (DTaP + IPV) Vaccine

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: Anterolateral aspect of the thigh for infants and deltoid muscle for older children.

Route of Administration: Intramuscular

Doses and Schedule: The vaccine is given routinely at the age of 4-5 years. 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.
- Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP or DTaP.

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

* *The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information about the vaccine.*

Tetravalent (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: Anterolateral aspect of the thigh for infants and deltoid muscle for older children.

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.
- Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP or DTaP.

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

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Inactivated Seasonal Influenza Vaccine

Type of Vaccine: Inactivated virus.

Minimum Age: 6 months

Dose: 0.5 ml (according to manufacturer)

Site of Administration: Anterolateral aspect of the thigh for infants and deltoid muscle for older children and adults.

Route of Administration: Intramuscular

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

Schedule: Follow the updated national routine immunization schedule and seasonal influenza vaccine guideline.
It is recommended for certain risk categories including: children ≥ 6 months and ≤ 5 years, adults/elderly ≥ 50 years, health care workers, pregnant women (at any stage of pregnancy), 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-suppression by medications or by disease condition) and other categories at risk determined by treating physician.

Precautions:
- 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).

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. Adverse reactions including soreness, redness and swelling at injection site, fever, malaise and myalgia might occur. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Human Papilloma Virus Vaccine

Type of Vaccine: Inactivated virus.

Three types of vaccines: Bivalent, Quadrivalent, 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 or more.

2 doses schedule: At initial visit and after 6 months.

3 doses schedule: At initial visit, second dose after 1 to 2 months from the first dose, third dose after 6 months from the first dose.

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: These vaccines are generally safe. Local reactions including pain, erythema and swelling at injection site are common with the three types of the vaccines. Fever, headache, dizziness, myalgia, arthralgia and gastrointestinal symptoms (nausea, vomiting, and abdominal pain) were reported with various frequencies. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Typhoid Polysaccharide Vaccine

Type of Vaccine: Inactivated

Minimum Age: ≥ 2 years.

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of the thigh for infants and deltoid muscle for older children and adults.

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 previous dose or to a vaccine component.

Side Effects: The vaccine is generally safe. Local adverse reaction is reported after the vaccine. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information about the vaccine.*

Yellow Fever Vaccine

Type of Vaccine: Live attenuated virus.

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

Dose: 0.5 ml

Site of Administration: Anterolateral aspect of the thigh for infants and deltoid muscle for older children and adults.

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:

- Severe allergy to any component of the vaccine including eggs, chicken proteins, or gelatin, or severe allergic reaction to a previous yellow fever vaccine dose.
- Immunodeficiency
- Pregnancy.

Side Effects: The vaccine is generally safe. Headache, myalgia, low grade fever, pain at injection site, pruritus and urticarial rash may follow
vaccination. Serious adverse event including immediate severe hypersensitivity or anaphylactic reactions and neurological disease might less commonly to rarely occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Rabies Vaccine

Type of Vaccine: Inactivated.

Minimum Age: According to manufacturer.

Dose: 0.5 ml or 1 ml depending on the type of vaccine.

Site of Administration: Anterolateral aspect of the thigh for infants and deltoid muscle for older children and adults.

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

Number of Doses:

Pre-exposure prophylaxis (PrEP)

- Not part of routine schedule in kingdom of Bahrain.
- One-site (1 vial per site) intramuscular (IM) regimen on days 0 and 7, **or**
- Two-sites (0.1 mL per site) intradermal regimen on days 0 and 7.
- Special regimens apply for immunocompromised individuals.

Post exposure prophylaxis (PEP)

- Four doses for post exposure prophylaxis (PEP) depending on the manufacturer, route of administration and the national recommended regimen.
  - One-site (1 vial per site) intramuscular on days 0, 3, 7 and 14 –28, or
  - Two-sites intramuscular on day 0 and one site, intramuscular on days 7 and 21, or
  - Two-sites (0.1 ml per site) intradermal on days 0, 3 and 7.

- **Administration of rabies immunoglobulins (RIG)**: (infiltration around the wound) according to wound category and country rabies status according to the following: -
  - In severe category III exposures.
  - In category II exposures to bats.
  - * In view of Rabies free status of Kingdom of Bahrain as indicated by Communicable Diseases Surveillance among human and based on reported data from **Control and Animal Health Directorate**, rabies vaccines are recommended as post exposure prophylaxis in the Kingdom of Bahrain to the following:
  - Individual exposed to rabies outside the kingdom of Bahrain.

- Other categories determined by treating physician based on risk estimation.

** refer to update related to rabies epidemiological situation in kingdom of Bahrain.

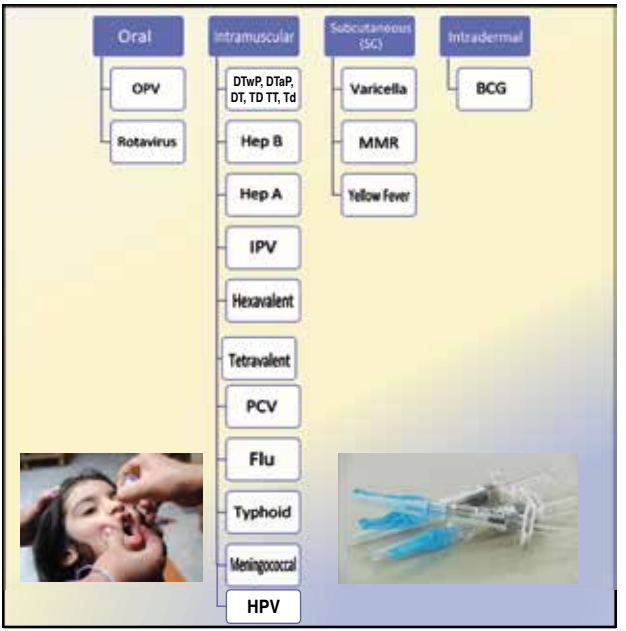
Schedule: Follow the updated national routine immunization schedule and rabies vaccination updated guidelines.

Contraindications and Precautions: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. There is no Contrainclication to PEP vaccination due to fatal outcome of rabies. For more information refer to vaccine package insert (leaflet).

Side Effects: The vaccine is generally safe and well tolerated. Most of the adverse events are mild including pain, redness and swelling at injection site. Systemic reactions including fever, dizziness, headache, and gastrointestinal symptoms may also occur. Rarely serious side effect such as severe allergic reactions to vaccine component might occur.

* *The vaccine information and schedule subjected to change.*
** *Refer to vaccine packaging insert for more information about the vaccine.*

Routes of vaccine administration



How to soothe a child during vaccination

Caregivers:

- ✔ Hold your child in a comfortable position.
- ✔ Infants should be breastfed during or shortly before.
- ✔ Distract your child with toys, books, singing.

Health Workers:

- Be calm, collaborative and well-informed. ✔
- Use neutral words when administering the vaccine such as "here I go". ✔
- If multiple vaccines are scheduled, give least to most painful. ✔

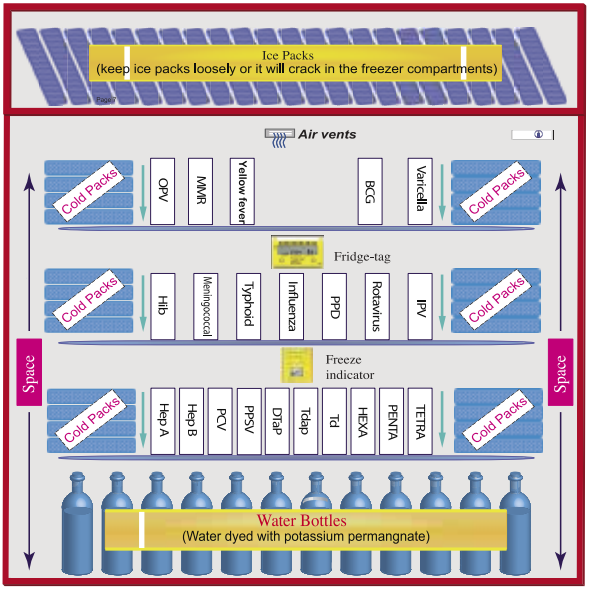
Reducing pain at time of vaccination

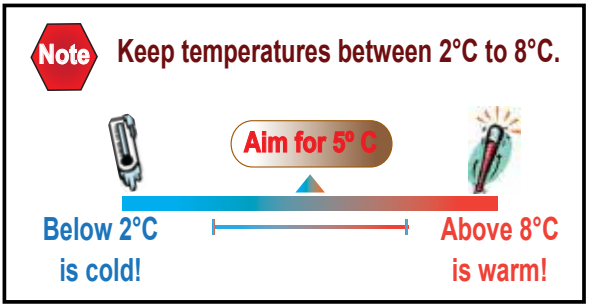
- Health care worker should use neutral language to educate the cargiver and vaccine reciepient.
- Proper positioning of the vaccine recipient according to the age.
- Infants and young children should be held by caregiver.
- Adolescent and adults should sit upright.
- Patients with history of fainting should be lying down.
- No aspiration during intramuscular injections.

Infant	• Breast feeding of infants should be done during or shortly before the vaccination session if culturally acceptable. • Oral Rota virus vaccine may be given first followed by OPV. • If injected sequentially in the same session, vaccines should be administered in order of increasing pain.
Child	• Caregiver should be present throughout and after vaccination. • Infants and children aged < 3 years should be held by caregivers throughout procedure, those ≥ 3 years should be seated. • Distract children < 6 years to divert attention from pain.
Adult	• Distraction susing breathing interventions, such as slight coughing or breath-holding, is recommended.

Vaccine Fridge Arrangement

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

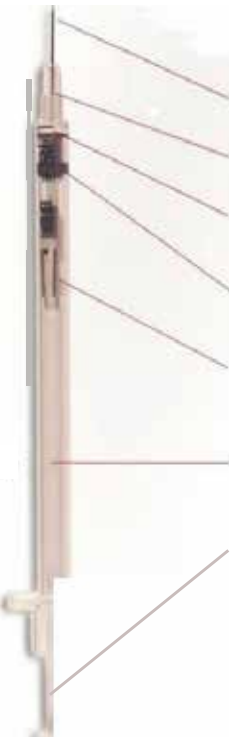




1. Keep temperature between 2°c to 8°c.
2. Keep 4cm space on each side and back for air flow.
3. Use cold packs and sealed water bottles to stabilize temperature.
4. Place fridge tag in center of refrigerator away from coils, walls , floor and fan.
5. Place freeze indicator with freeze sensitive vaccine.
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. **NO** exchange of diluents between vaccines.
9. **NO** block of air vents with vaccines.
10. **NO** adjust of vaccine fridge temperature control.
11. **NO** unplug of vaccine fridge or break circuit.
12. **NO** vaccine kept in direct contact with cold or ice packs.

Auto disabled syringes



actual size

High quality needle

Permanently attached needle

Minimal dead space

Preset volume and bold scale markings

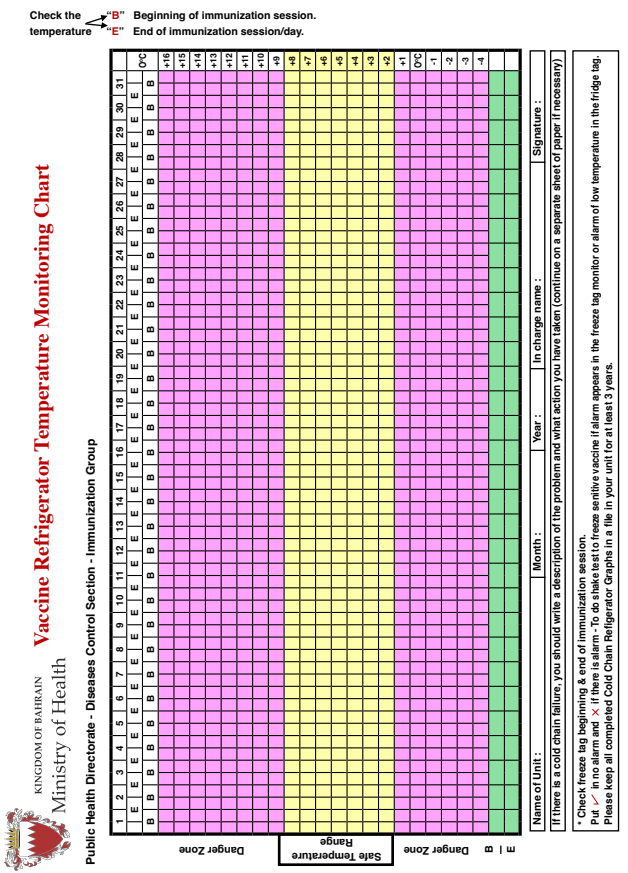
Patented clip Auto-Disable mechanism

Clear barrel
Low injection/ pull forces

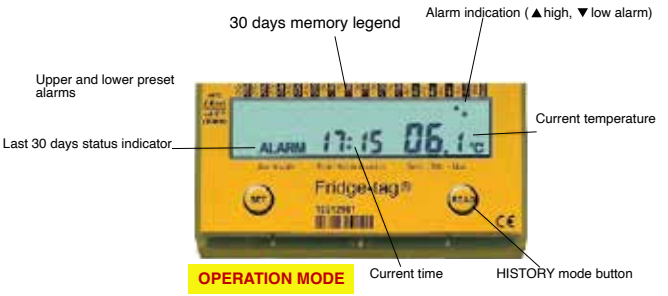
Tamper-resistant plunger rod
Individual sterile package
Latex-free.

Vaccine Refrigerator Temperature Monitoring Chart

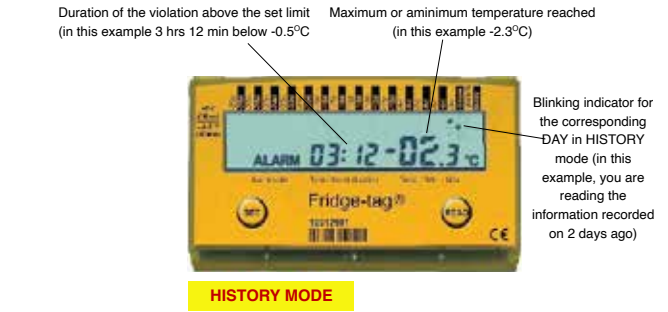
Temperature should be checked and recorded at the beginning and end of immunization session/day. In addition, other monitors present in vaccine fridge including freeze monitoring indicator should be checked and recorded.



HOW TO READ FRIDGE-TAG?



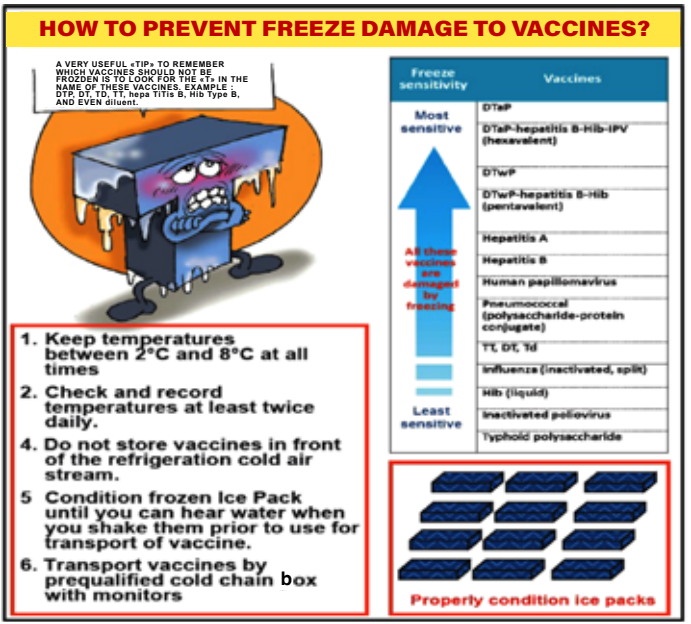
OPERATION MODE



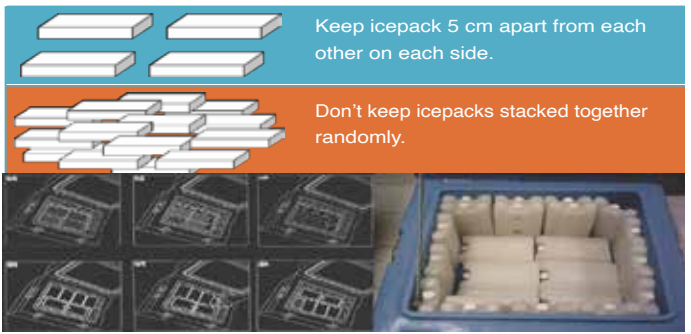
HISTORY MODE

Freeze indicator (Freeze tag):

When alarm is shown, it indicates exposure to freezing temperature.Shake test is recommended for certain freeze sensitive vaccines. Report the incident and consult Disease Control Section at Public Health Directorate for recommendation.



Conditioning of the ice–packs and arrangement of cold chain box:



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"

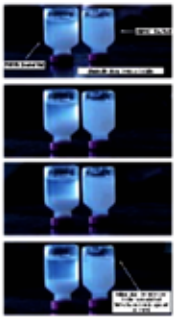
Step 1. Select one sample from each type and batch of «SUSPECT» vaccine. Freeze a vial until it is solid; this will be your control vial - call it "FROZEN".

Step 2. Allow FROZEN vial to thaw completely.

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

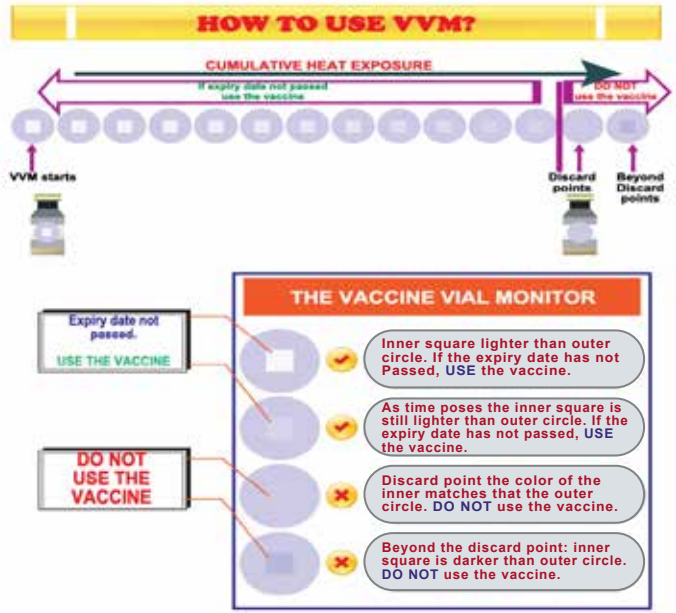
Step 4. Shake FROZEN and SUSPECT vials for 20 second.

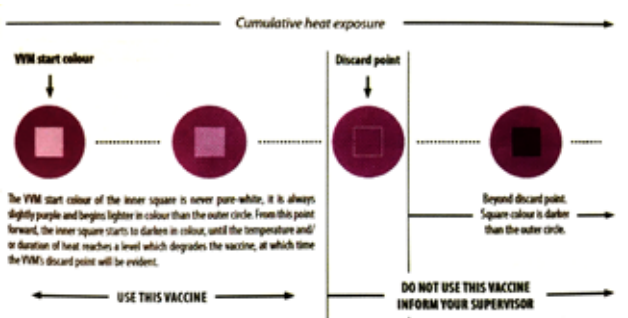
Step 5. Observe FROZEN and SUSPECT vials side-by side on a flat surface to compare how they sediment (5-15 minutes).



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.

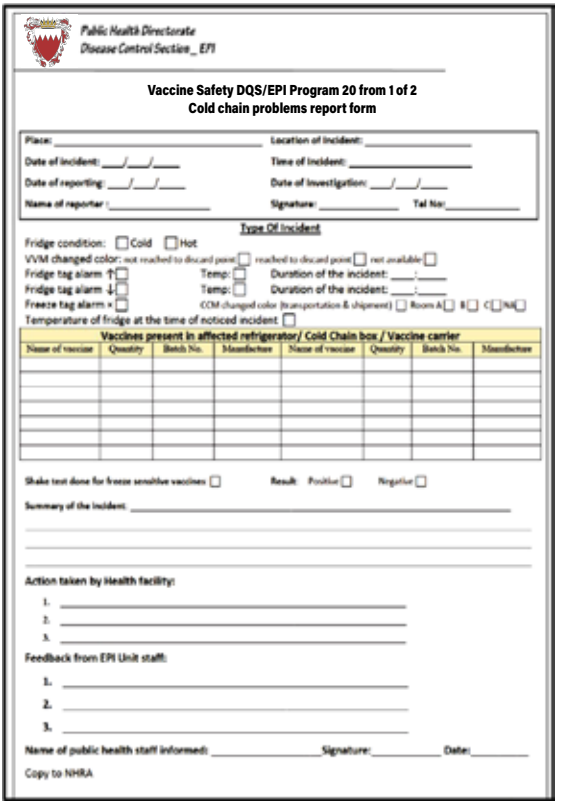

HOW TO USE VVM?
CUMULATIVE HEAT EXPOSURE
If expiry date not passed use the vaccine
DO NOT use the vaccine
VVM starts
Discard points
Beyond Discard points
THE VACCINE VIAL MONITOR
Expiry date not passed.
USE THE VACCINE
DO NOT USE THE VACCINE
Inner square lighter than outer circle. If the expiry date has not Passed, USE the vaccine.
As time poses the inner square is still lighter than outer circle. If the expiry date has not passed, USE the vaccine.
Discard point the color of the inner matches that the outer circle. DO NOT use the vaccine.
Beyond the discard point: inner square is darker than outer circle. DO NOT use the vaccine.


Cumulative heat exposure
VVM start colour
Discard point
The VVM start colour of the inner square is never pure-white, it is always slightly purple and begins lighter in colour than the outer circle. From this point forward, the inner square starts to darken in colour, until the temperature and/or duration of heat reaches a level which degrades the vaccine, at which time the VVM's discard point will be evident.
Beyond discard point. Square colour is darker than the outer circle.
USE THIS VACCINE
DO NOT USE THIS VACCINE
INFORM YOUR SUPERVISOR

Cold chain problems reporting

Any violation or exposure to temperature outside recommended range should be reported (using cold chain problems/obstacles reporting form) to Public Health Directorate-Disease Control Section (immunization group) to give recommendation and feedback based on several factors including temperature stability, accumulative exposure and duration of exposure.

Cold chain problems / obstacles reporting form:



Public Health Directorate
Disease Control Section_ EPI

Vaccine Safety DQS/EPI Program 20 from 1 of 2
Cold chain problems report form

Place: _____ Location of Incident: _____
Date of Incident: ___/___/____ Time of Incident: _____
Date of reporting: ___/___/____ Date of Investigation: ___/___/____
Name of reporter : _____ Signature: _____ Tel No: _____

Type Of Incident

Fridge condition: ☐ Cold ☐ Hot
VVM changed color: not reached to discard point ☐ reached to discard point ☐ not available ☐
Fridge tag alarm ↑ ☐ Temp: ☐ Duration of the incident: ___:___
Fridge tag alarm ↓ ☐ Temp: ☐ Duration of the incident: ___:___
Freeze tag alarm ☐ CCM changed color (transportation & shipment) ☐ Room A ☐ B ☐ C ☐ NA ☐
Temperature of fridge at the time of noticed incident ☐

Vaccines present in affected refrigerator/ Cold Chain box / Vaccine carrier

Name of vaccine	Quantity	Batch No.	Manufacture	Name of vaccine	Quantity	Batch No.	Manufacture

Shake test done for freeze sensitive vaccines ☐ Result: Positive ☐ Negative ☐

Summary of the incident: _____

Action taken by Health facility:

1. _____
2. _____
3. _____

Feedback from EPI Unit staff:

1. _____
2. _____
3. _____

Name of public health staff informed: _____ Signature: _____ Date: _____

Copy to NHRA

References

- **WHO. Vaccines position papers. Available at**

  http://www.who.int/immunization/documents/positionpapers/en/

- **Center for Disease Control and Prevention, Epidemiology and Prevention of Vaccine- Preventable Diseases, 14th Edition- Pink Book. Available at**

  https://www.cdc.gov/vaccines/pubs/pinkbook/index.html

- **WHO. EVM Model Standard Operating Procedures consolidated version, with user guide. June 2013. Available at**

  https://www.who.int/immunization/programmes-systems/supply-chain/EVM-model- SOP-manual-EN-June-2013-compact.pdf

- **WHO. Vaccine Management Handbook. How to monitor temperatures in the vaccine supply chain. July 2015. Available at**

  https://apps.who.int/iris/bitstream/handle/183583/10665/WHO-IVB-15.04-eng.pdf;se quence=1

- **WHO. Introduction of fridge tag Guidelines on preparations for introduction and programme adjustments required. Available at**

  https://www.who.int/immunization-standards/vaccine-quality/introduction-guideline s-fridgetag.pdf

- **WHO. Managing an immunization session. Available at**

  https://www.who.int/immunization/documents/IIP-2015Module5.pdf?ua=1

- **Center for Disease Control and Prevention, Timing and Spacing of Immunobiologics. Available at.**

  https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.pdf

- **Center for Disease Control and Prevention, Contraindications and Precautions. Available at.**

  https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.pd