With compliments of

Disease Control Section at Public Health Directorate

Approved by:

Immunization Committee


بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

His Majesty the late Prince Prince Sheikh Isa bin Salman Al Khalifa, may God rest his soul, former Prince of the State of Bahrain

His Majesty King Hamad bin Isa bin Salman Al Khalifa, King of the Kingdom of Bahrain

His Royal Highness Prince Salman bin Hamad Al Khalifa, Crown Prince and Prime Minister of the Kingdom of Bahrain

IMMUNIZATION SUMMARY GUIDE BOOKLET

Recommended Immunization Schedule for the Kingdom of Bahrain

AGE	VACCINE	DOSE
CHILDREN		
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 and 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 Hexavalent))	3rd Dose
	Oral Polio Vaccine (OPV)	3rd Dose
12 months	Measles, Mumps, Rubella (MMR)	1st Dose
	Varicella (Chickenpox)	
15 months	Pneumococcal Conjugate (PCV)	Booster
	Child Hepatitis A	1st Dose

Recommended Immunization Schedule for the Kingdom of Bahrain

AGE	VACCINE	DOSE
CHILDREN		
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
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		
12-13 years	Tetanus, diphtheria toxoid, acellular pertussis vaccine (Tdap)	Booster
	Human Papillomavirus (HPV)	2 doses (minimum interval 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
	1 year after Td3	Td 1st Booster
	1 year after Td 1st booster	Td 2nd booster
Tdap	One dose of Tdap to be given to all pregnant women in the second or third trimester at (27 to 36 weeks)	Single Dose

ADULT, ELDERLY AND HIGH RISK GROUPS	
Pneumococcal Conjugate vaccine (PCV)	• Single dose for adult ≥ 50 years and for certain high risk groups.
Pneumococcal Polysaccharide vaccine	• Single dose for adults ≥ 65. • Single dose for high risk group ≥ 2-64 years • Single revaccination dose after 5 years is recommended to at risk groups including (Sickle cell disease/other blood disroders, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, malignancy, leukemia, lymphoma, iatrogenic immunosuppression, solid organ transplant). Also, certain high-risk people who were 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.
Seasonal Influenza vaccine	• Recommended in every season from age of ≥ 6 months to certain categories at risk of infection including (children ≥6 months and ≤ 5 years, adults/elderly ≥ 50 years • 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 • Other categories at risk to be determined by treating physician).

ADULT, ELDERLY AND HIGH RISK GROUPS	
Varicella vaccine	Recommended to at risk groups. Two doses, 3 months apart, for 1-12 years of age and as two 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 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 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.
Respiratory Syncytial Virus (RSV)	• The vaccine is recommended as single dose for older adults to prevent serious RSV infection and hospitalization. Target for RSV Vaccine includes: All Adults at 75 years of age and older, Adults at 60-74 years of age at increased risk of severe RSV disease. (refer to guideline)

ADULT, ELDERLY AND HIGH RISK GROUPS	
Herpes Zoster Vaccine	Recommended as two doses, 2 months apart to at risk groups including: • Priority Group: Adults aged 19 years and older with weakened immune systems due to disease or therapy, based on the recommendation of the treating physician. • General Population: All adults aged 50 years and older. • Chronic Medical Conditions: Patients with chronic conditions at increased risk for severe herpes zoster, based on physician recommendations.
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 each 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 at 0, 1, and 6 months (if not previously immunized)
	Hepatitis A	2 doses 6 months apart (if not previously immunized)
Immunocompro-mised 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 risk category and according to assessment of 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 vaccine	Single dose in every season
	Tetanus/Diphtheria Toxoid (Td) Or Tdap	Booster doses after the primary series
Chronic renal failure including renal dialysis patients	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)	3 doses
	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)
	Inactivated seasonal influenza	Single dose in every season
	Hepatitis B	3 doses
	Tetanus/Diphtheria Toxoid (Td) or Tdap	Booster doses after the primary series
Immunocompromised by malignancy/ post bone marrow transplant	Refer to oncology and post Bone marrow transplant guidelines (fitness certificate by treating physician)	
Post solid organ transplant (to be determined by treating physician) (Continue on the next page)	Hepatitis B	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	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)	Pneumococcal polysaccharide (PPSV)	Single dose and single revaccination dose after 5 years
	Inactivated seasonal influenza	Single dose in 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 the 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	18 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	—	—

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
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 vaccine 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 and dose number	Recommended 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)
HPV 2-dose series at 0, 6-12 months (for those receiving the first dose of the vaccine at < 15 years)			
Human Papillomavirus Vaccine HPV-1	12-13 years	9 years	6 months
HPV-2	12-13 years	9 years	—
HPV 3-dose series at 0, 1-2, 6 months (for those receiving the first dose of the vaccine at ≥ 15 years)			
HPV-1	15 years	15 years	4 weeks
HPV-2	15 years	15 years	12 weeks and (5 months between 1st and 3rd dose)
HPV-3	15 years	15 years	—

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 Live and Inactivated Antigens

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

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)
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
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 of 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 malformation. • Severe combined immunodeficiency (SCID).	• Moderate or severe acute illness with or without fever. • Altered immunocompetence other than SCID. • 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.
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 of 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 of 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.

Vaccine	Contraindications	Precautions
Measles, Mumps, Rubella (MMR) (Cont.)	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.	• 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 of 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 of 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 the 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 first).
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° C to 8° 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 suppurative lymphadenitis can occur due to injection of the vaccine sub-cutaneously. 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 regarding 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. Pregnancy, 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.

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

Recombinant Zoster Vaccine

Type of Vaccine: Inactivated virus (recombinant, adjuvanted vaccine)

Minimum Age: 18 years

Dose: 0.5 ml.

Site of Administration: Deltoid region

Route of Administration: Intramuscular (IM).

Number of Doses:
• Two doses of RZV are recommended to target population regardless of previous history of shingles or previous receipt of zoster vaccine.
• The second dose can be administered (2-6 months) after the first dose.
• For patients who are or will be immunodeficient or immunosuppressed and who would benefit from completing the series in a shorter period, the second dose can be administered (1-2) months after the first.

Schedule: Refer to the updated guideline for RZV.
• **Priority Group**: Adults aged 19 years and older with weakened immune systems due to disease or therapy, based on the recommendation of the treating physician.
• **General Population**: All Adults aged 50 years and older.
• **Chronic Medical Conditions**: Patients with chronic conditions at increased risk for severe herpes zoster, based on physician recommendation.

Precautions: Moderate or severe illness with or without fever.

Contraindications: Severe allergic reaction, such as anaphylaxis, to any component of that vaccine and during an acute episode of shingles.

Side Effects: The most reported local reactions including pain, redness, and swelling. General reactions including myalgia, fatigue, headache, shivering, and fever. Rarely, serious side effects such as severe allergic reaction to vaccine component might occur.

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

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 is 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 toxoid-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.

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.

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

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

Pertussis-containing vaccines precautions:
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 prolonged 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 regarding the vaccine.**

Tdap

Type of Vaccine: Inactivated vaccine containing (Tetanus Toxoid, Reduced Diphteria Toxoid and Acellular Pertussis)

Minimum Age: According to manufacturer

Dose: 0.5 ml.

Site of Administration: Deltoid region

Route of Administration: Intramuscular (IM).

Number of Doses:

- Single dose to those at higher risk of infection and to elderly above 65 years.
- Single booster dose to adolescents.
- Single dose in each pregnancy to be administered in the 2nd or 3rd trimester and preferably at least 15 days before the end of pregnancy (optimal timing between the 27th through 36th weeks).
- Tdap vaccine dose can replace Td vaccine if scheduled to be given during pregnancy.

Schedule:

- Booster dose to adolescents at 12-13 years
- Pregnant in the 2nd or 3rd trimester
- Adults in high-risk groups
- Elderly above 65
- Health care workers

Precautions:

- Moderate to severe acute illness with or without fever.
- Guillain-Barre syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine.
- Progressive or unstable neurologic conditions are reasons to defer vaccination.
- History of Artus-type hypersensitivity reactions after a previous dose of diphtheria or tetanus toxoid-containing vaccine; delay vaccine at least 10 years since last dose.

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

Tdap

Pertussis-containing vaccines precautions:

Progressive or unstable neurologic disorder including 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 e.g., anaphylaxis) after a previous dose or to any other diphteria toxoid, tetanus toxoid and pretussis antigen-contaning vaccine.
• Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) within 7 days of administration of a previous pertussis antigen containing vaccine.

Side Effects:

• Local reactions including injection site pain, swelling and erythema.
• Other reactions including headache, body ache or muscle weakness and tiredness.
• Rarely, serious side effects such as severe allergic reaction to vaccine component might occur.

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

Hepatitis A Vaccine

Hepatitis A child
Type of Vaccine: Inactivated virus.

Minimum Age: 12 months (maximum age according to manufacturer).

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

Dose: 1ml (check the dose according to the 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 regarding 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.

Hepatitis B adult

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 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.
Adult schedule is 0,1, and 6 months (if not previously immunized).

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 regarding the vaccine.**

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 multidose 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: 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 regarding the vaccine.**

Measles, Mumps, Rubella 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 groups provided no contraindication.

Schedule: This vaccine is given routinely to children. This vaccine is given routinely to children at 12 months and 18 months. Follow the updated national routine immunization schedule.
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 healthcare 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 product, refer to previous tables "Recommended interval before measles or varicella-containing vaccine administration"), 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 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 regarding 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: The vaccine is given 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 including redness, pain at the 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 regarding the vaccine.**

Pneumococcal Conjugate Vaccine (PCV 20)

Type of Vaccine: Inactivated bacteria (saccharides from 20 serotypes of S. pneumonia)

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 PCV20 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 individual, 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 PCV or to a vaccine component.
For PCV20, 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 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 regarding 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 immunodeficiencies (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 individual, 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 regarding the vaccine.**

Rotavirus Vaccine

Type of Vaccine: Live attenuated virus.

Minimum Age: 6 Weeks.

Dose: 1-2 mL depend 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 regarding the vaccine.**

Hexavalent (DTaP, Hib, Hepatitis B, IPV) Vaccine

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 the thigh for infants.
Deltoid muscle for older children and adults.

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 or evolving brain disease (e.g., coma, decreased level of consciousness, prolonged 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 regarding the vaccine.**

Pentavalent (DTP, Hib, Hepatitis B) Vaccine

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.
Deltoid muscle for older children and adults.

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 regarding 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.
Deltoid muscle for older children and adults.

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 regarding 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.
Deltoid muscle for older children and adults.

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 regarding the vaccine.**

Inactivated Seasonal Infuenza Vaccine

Type of Vaccine: Inactivated virus.

Minimum Age: 6 months .

Dose: 0.5ml (according to manufacturer).

Site of Administration: Anterolateral aspect of the thigh for infants.
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 guidelines.
It is recommended for certain risk categories including: children ≥6 months and ≤ 5 years, adults/elderly ≥ 50 years, healthcare 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 neurological and neurodevelopmental 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 regarding 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 regarding 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.
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 a 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 regarding 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.
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 regarding the vaccine.**

RSV Vaccine

Type of Vaccine: Inactivated Virus virus.

Minimum Age: 18 years.

Dose: 0.5 ml.

Site of Administration: Deltoid region.

Route of Administration: Intramuscular (IM)

Number of Doses: Single dose.

Schedule: The vaccine is offered to the following target group:

- All adults at 75 years of age and older.
- Adults at 60-74 years of age at increased risk of severe RSV disease:
  - Chronic cardiovascular disease.
  - Chronic lung or respiratory disease.
  - Chronic renal disease or hemodialysis patients.
  - Diabetes mellitus with end organ damage.
  - Neurologic or neuromuscular conditions causing impaired airway clearance or respiratory muscle weakness (e.g., post stroke dysphagia, amyotrophic lateral sclerosis, or muscular dystrophy)
  - Chronic liver disease (e.g., cirrhosis)
  - Severe obesity (body mass index ≥40 Kg/m2)
  - Residence in a nursing home
  - Moderate or severe immune compromise:
    - o Active treatment for solid tumor and hematologic malignancies, receipt of solid-organ transplant and taking immunosuppressive therapy.
    - o Moderate or severe primary immunodeficiency (e.g., common variable immunodeficiency disease, severe combined immunodeficiency).
    - o Advanced HIV infection.
    - o Active treatment with high-dose corticosteroids (i.e., 20mg or more of prednisone or equivalent per day when administered for 2 or more weeks), alkylating agents, antimetabolites, transplant-related immunosuppressive drugs, cancer chemotherapeutic agents classified as severely immunosuppressive, tumor necrosis factor (TNF) blockers, and other biologic agents that are immunosuppressive or immunomodulatory (e.g., B-celldepleting agents)

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

RSV Vaccine

Precautions: Moderate or severe illness with or without fever.

Contraindications: History of allergic reaction, such as anaphylaxis, to any component of that vaccne.

Side Effects: The most reported local and systemic adverse reactions in older adults were fatigue, headache, pain at the injection site, and muscle pain. Rarely, serious side effects such as severe allergic reaction to vaccine component might occur.

*** The vaccine information and schedule subjected to change.**
**** Refer to vaccine packaging insert for more information regarding the 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: Anterolateral aspect of the thigh for infants.
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.

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.

Special regimens apply for immunocompromised subjects.

• **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 the 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 the Kingdom of Bahrain.

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

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

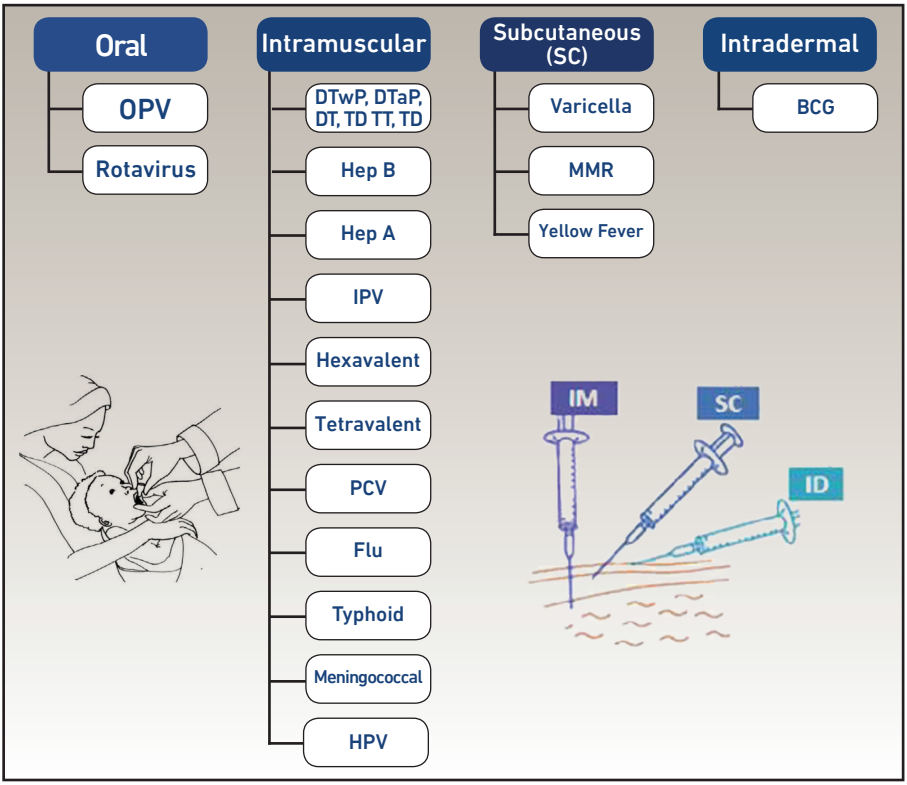
Rabies Vaccine

Contraindications and Precautions: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. There is no contraindication 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 regarding 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

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

Infant	•Breastfeeding 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	•Distractions using 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

NOTE

KEEP TEMPERATURES BETWEEN 2°C TO 8°C.

AIM FOR 5°C

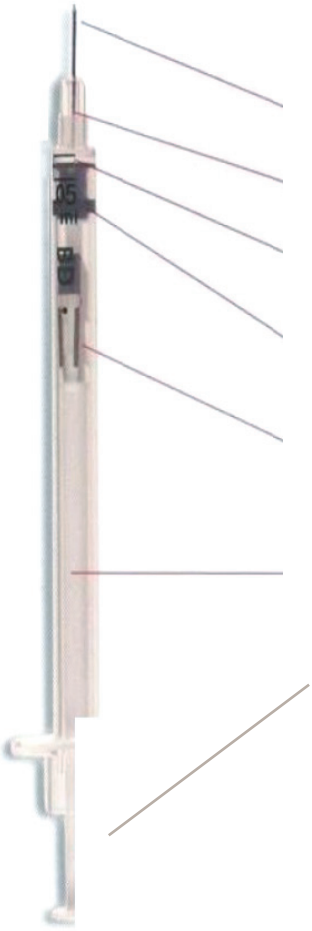
BELOW 2°C
IS COLD!

ABOVE 8°C
IS WARM!

1. Keep temperature between 2°C to 8°C.
2. Keep 4cm space on each side and on the back for air flow.
3. Use cold packs and sealed water bottles to stabilize temperature.
4. Place fridge tag in the center of the 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. In case of power failure, activate approved contingency plan.
12. Administer vaccines using auto-disabled syringes.
13. Rotate vaccine stock: vaccine that expires first should be used first "First In, First Out" unless the VVM shows that it should be used first, even if it has 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 adjustment of vaccine fridge temperature control.
11. NO unplugging of vaccine fridge or breaking of the circuit.
12. NO vaccine kept in direct contact with cold or ice packs.
13. DO NOT overcrowd the fridge with a lot of vaccines.

Auto Disabled Syringes



High quality needle

Permanently attached needle

Minimal dead space

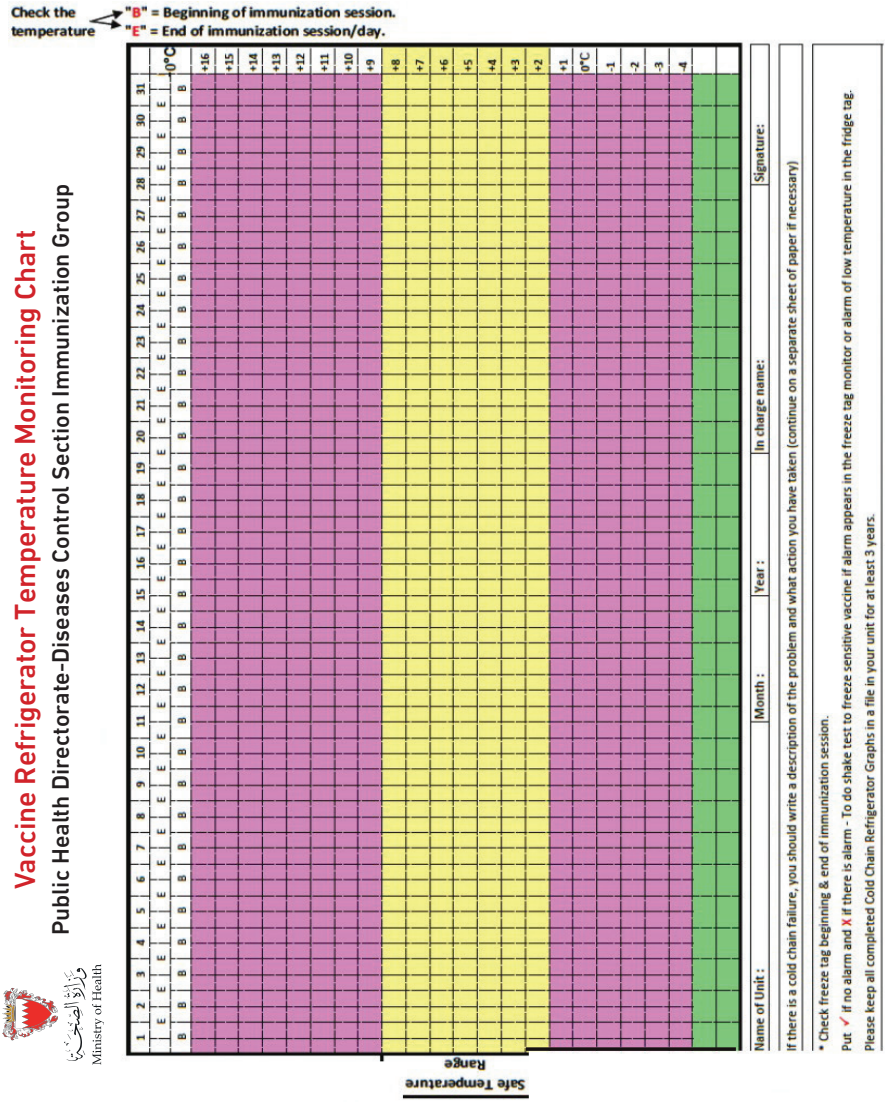
Preset volume and bold scale markings

Patented clip Auto-Disable mechanism

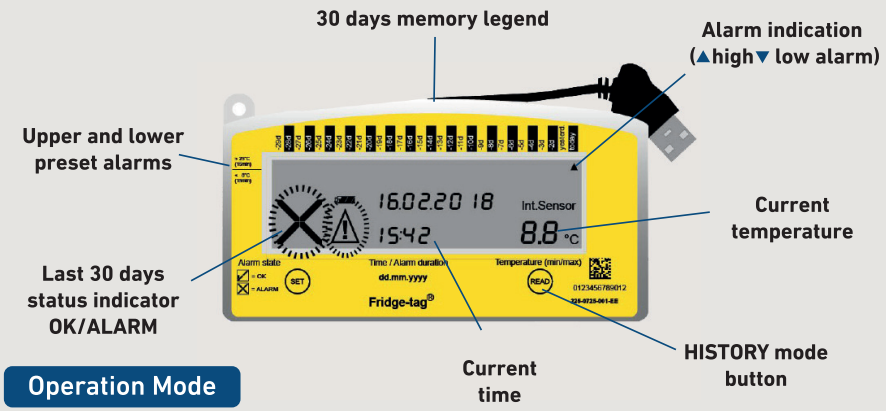
Clear barrel
Low injection/pull forces

Tamper-resistant plunger rod
Individual sterile package
Latex-free

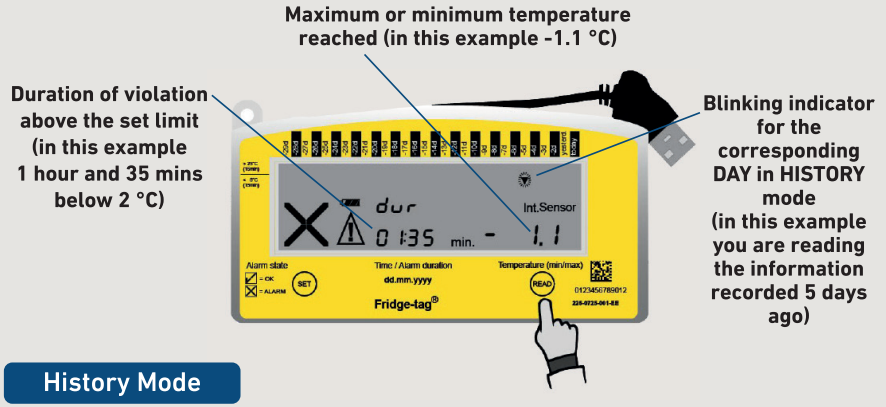
Temperature should be checked and recorded at the beginning and end of immunization session/day. In addition, other monitors present in vaccine fridge including freeze monitoring indicator should be checked and recorded.



HOW TO READ THE FRIDGE-TAG?



Operation Mode



History Mode

Freeze indicator (Freeze tag):

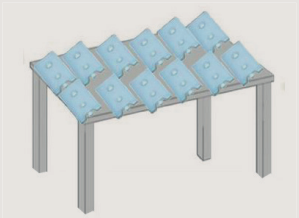
When alarm is shown, it indicates exposure to freezing temperature. Shake test is recommended for certain freeze sensitive vaccines. Report the incident and consult Disease control section at Public Health Directorate for recommendation.

HOW TO PREVENT FREEZE DAMAGE TO VACCINES?

Most sensitive	DTaP
	DTaP-hepatitis B-Hib-IPV (hexavalent)
	DTWP
	DTWP-hepatitis B-Hib (pentavalent)
	Hepatitis A
	Hepatitis B
	Human papillomavirus
	Pneumococcal (polysaccharide-protein conjugate)
	Influenza (inactivated, split)
	Hib (liquid)
	Inactivated poliovirus
Least sensitive	Typhoid polysaccharide

All these vaccines are damaged by freezing

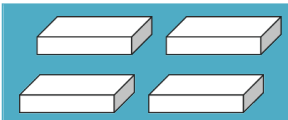
PROPERLY CONDITIONED ICE PACKS



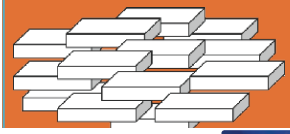
PLACE ICE PACKS ON THE TABLE AND WAIT UNTIL THE FROST ON THE SURFACE OF THE ICE PACKS MELTS

1. Check and record temperatures at least twice daily.
2. Do not store vaccines in front of the refrigeration cold air stream.
3. Condition frozen Ice Pack until you can hear water when you shake them prior to use for transport of vaccines.
4. Transport vaccines by WHO prequalified cold chain box with monitors.

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



Keep icepack 5 cm apart from each other on each side.



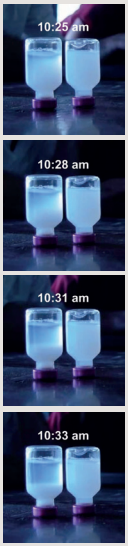
Don't keep icepacks stacked together randomly.

HOW TO PERFORM THE "SHAKE TEST"

SHAKE TEST

The "shake test" was designed to detect freeze damage in aluminum-based, adsorbed, freeze-sensitive vaccines such as all DTP containing vaccines (DT, Td, DTaP, Tdap, Tetravalent, Pentavalent, Hexavalent), PCV, Hepatitis A and Hepatitis B vaccines. These vaccines must never be frozen as this reduces their immunogenicity. When these vaccines freeze, the alum content gets loose, tends to agglomerate, and sediments faster than vaccines that have not suffered freeze damage.

If you suspect that a vaccine has been frozen (e.g., thermometer marks temperature <0°C), conduct a «Shake test»:



Step 1.
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.

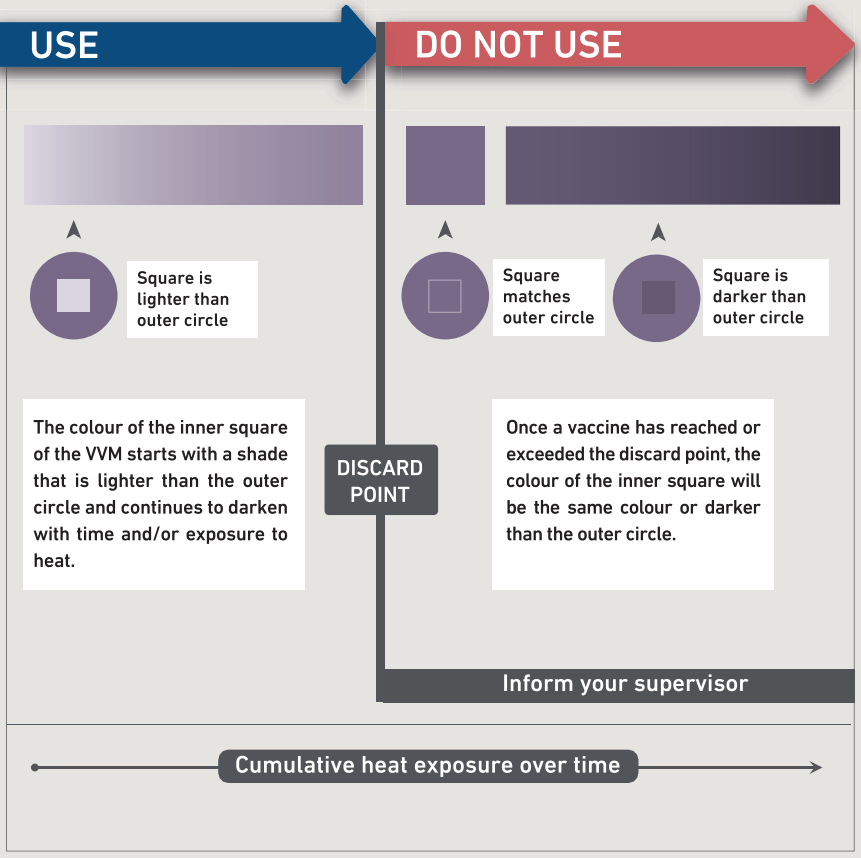
Step 5.
Observe FROZEN and SUSPECT vials side-by-side to compare how they sediment (5-15 minutes).

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

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

Shake test video:

VACCINE VIAL MONITOR (VVM)



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:

Ministry of Health

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:

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