مَمْلَكَةُ البَحْرَيْن

وَزَارَةُ الصِّحَّة

KINGDOM OF BAHRAIN

Ministry of Health

Immunization Summary Guide Booklet

THIS BOOKLET IS USED TO RAISE THE AWARNESS OF HEALTH CARE WORKERS ABOUT VACCINES AND VACCINES MANAGEMENT

4th Edition 2019

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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
	Paediatric 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 Pentavalent)	3rd Dose
	Oral Polio Vaccine (OPV)	3rd Dose
12 months	Measles, Mumps, Rubella (MMR) Varicella (Chickenpox)	1rd Dose
15 months	Pneumococcal Conjugate (PCV)	Booster
	Paediatric Hepatitis A	1rd 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
	Paediatric 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	
13 years	Tetanus, diphtheria toxoid, acellular pertussis vaccine (Tdap)	Booster

Recommended Immunization Schedule for the kingdom of Bahrain

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
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 adult age ≥ 65 and for certain high risk group ≥ 2-64 years. Revaccination dose after 5 years is recommended for certain risk groups including (Sickle cell disease/other hemaglobinopathies, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, malignancy, leukemia, lymphoma, iatrogenic immunosuppression, solid organ transplant). 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 might be given to those at higher risk of infection.	
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 and certain chronic medical conditions such as: chronic pulmonary diseases, chronic cardiovascular diseases, chronic renal diseases, chronic hepatic diseases, chronic hematological conditions, chronic metabolic disorders including diabetes mellitus, chronic neurologic and neurodevelopment conditions, Immune-suppressed individuals by medications or by disease condition, pregnant women, health care workers and other categories at risk to be determined by treating physician).	

Recommended Immunization Schedule for the kingdom of Bahrain

ADULT , ELDERLY AND HIGH RISK GROUPS	
Varicella vaccine	For certain 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 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: sickle cell disease, anatomical and/or surgical asplenia, 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 each season

Recommended Immunization Schedule for the kingdom of Bahrain

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 (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 risk category and according to assessment of treating physician.**

Recommended Vaccination for Special Risk Groups

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

Recommended Vaccination for Special Risk Groups

Disease Condition	Vaccines recommended	Dose
Chronic liver disease	Hepatitis B vaccine	3 doses
	Hepatitis A vaccine	2 doses
	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	Inactivated seasonal influenza vaccine	Single dose annually every season
Chronic lung disease	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	Inactivated seasonal influenza vaccine	Single dose annually every season
Sickle cell disease patients. Patients with functional or anatomical asplenia and pre- splenectomy	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose and revaccination dose after 5 years
	Hepatitis B vaccine	3 doses
	Meningococcal ACWY conjugate vaccine	Single dose, booster doses every 5 years (according to manufacturer)
	Inactivated seasonal influenza vaccine	Single dose annually every season
	Haemophilus influenza type b (Hib) for those >5 years of age	Single dose

Recommended Vaccination for Special Risk Groups

Disease Condition	Vaccines recommended	Dose
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 revaccination dose after 5 years
	Inactivated seasonal influenza vaccine	Single dose annually every season
	Hepatitis B vaccine	3 doses
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)	Hepatitis B vaccine	3 doses (check Hepatitis B immunity after 1-2 months of last dose). If the vaccine was received before check immunity and accordingly to decide about the need of repeating vaccination series for non-immune).
	Pneumococcal conjugate vaccine	One dose

Recommended Vaccination for Special Risk Groups

Disease Condition	Vaccines recommended	Dose
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 patient received pneumococcal polysaccharide vaccine previously, wait for one year prior to administration of 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 and Minimum Ages and Intervals between Doses of Routine Vaccines

Vaccine and the scheduled dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Diphtheria-Tetanus Pertussis DTP-1	2 months	6 weeks	4 weeks
DTP-2	4 months	10 weeks	4 weeks
DTP-3	6 months	14 weeks	6 months
DTP-4	18 months	15 months	6 months
DTP-5	4-5 years	4 years	—
Tetanus-diphtheria-acellular pertussis (Tdap)	13 years	(according to manufacturer)	—
Haemophilus Influenza type B Hib-1	2 months	6 weeks	4 weeks
Hib-2	4 months	10 weeks	4 weeks
Hib-3	6 months	14 weeks	8 weeks
Hib-4	18 months	12 months	—
Hepatitis A HepA-1	15 months	12 months	6 months
HepA-2	2 years	18 months	—
Hepatitis B HepB-Birth	Birth	Birth	4 weeks
HepB-1	1-2 months	4 weeks	8 weeks
HepB-2	4 months	8 weeks	8 weeks
HepB-3	6-18 months	24 weeks	—

Recommended and Minimum Ages and Intervals between Doses of Routine Vaccines

Vaccine and the scheduled 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	18 weeks	6 months
IPV-5	4-5 years	4 years	—
Poliovirus OPV-1	4 months	6 weeks (in certain situation birth dose is given)	4 weeks
OPV-2	6 months	10 weeks	4 weeks
OPV-3	18 months	14 weeks	6 months
OPV-4	4-5 years	4 years	—

Recommended and Minimum Ages and Intervals between Doses of Routine Vaccines

Vaccine and the scheduled dose number	Recommended age for this dose	Minimum age for this dose	Minimum interval to next dose
Rotavirus RV-1	2 months	6 weeks	4 weeks
RV-2	4 months	10 weeks	4 weeks
RV-3 (given if pentavalent Rota virus vaccine is used)	6 months	14 months	—
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 and Minimum Ages and Intervals between Doses of Routine Vaccines

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

Recommended and Minimum Ages and Intervals between Doses of Routine Vaccines

Vaccine and the scheduled 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, its recommended to receive 2nd dose)
Human papillomavirus HPV-1	11-12 years	9 years	4 weeks
HPV-2	11-12 years (+ 2 months)	9 years (+ 4 weeks)	12 weeks
HPV-3	11-12 years (+ 6 months)	9 years (+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 14 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 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

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

Guide to Contraindications and Precautions to Commonly Used Vaccines

Vaccine	Contraindications	Precautions
Hepatitis B (HepB)	• Severe allergic reaction after a previous dose or to a vaccine component. • 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 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, prolong 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	• 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)	• 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	• 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, famiciclovir or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination. • Use of aspirin or aspirin containing product.

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.	• 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 component of the vaccine including eggs, chicken proteins, or gelatin, or who has had a severe allergic reaction to a previous yellow fever vaccine dose. • Immunodeficiency • Pregnancy.	• Moderate or severe acute illness with or without fever.
Typhoid polysaccharide vaccine	• Allergy to any of the vaccine components or to a previous dose of the vaccine.	• Moderate or severe acute illness with or without fever.
Rabies vaccine	• Allergic reaction to the vaccine or any of its components.	• Moderate or severe acute illness with or without fever.

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 أوأي 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) او أحد أفراد أسرته من أمراض سرطانية، مرض سرطان الدم (اللوكيميا)، قصور في المناعة أو مرض نقص المناعة المكتسبة أو أي امراض 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 الكورتيزون أو العلاج الكيميائي أو تم علاجه بالعلاج الاشعاعي خلال 6 أشهر 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 الامصال 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 الأربع 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 bacteria
Minimum Age: At birth
Dose: For less than 1 year of age (0.05ml), for more than 1 year of age (0.1ml)
Site of Administration: Deltoid region preferably in the left site.
Route of Administration: Intradermal

Storage: the vaccine should be stored at temperature between 2◦ C and 8◦ C and should not be exposed to direct sunlight or heat.

Number of Doses: Single dose.
BCG has established significant effectiveness; however protection has not been consistent against all forms of TB in all age groups. BCG also demonstrated effectiveness in preventing leprosy.

Schedule: Follow the updated national routine immunization schedule.
**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. BCG might be given to other risk categories determined based on risk assessment by treating physician .*

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 well 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 and lead to superficial scar after healing. Severe local reactions including injection site abscess, ulceration or suppurative lymphadenitis can occur due to in advert injection of the vaccine sub-dermally. Systemic reactions in the form of disseminated BCG disease occurs rarely mainly among patients with primary immunodeficiences and HIV infection.

** 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 and deltoid muscle for older children and adults.
Route of Administration: Subcutaneous (SC).
Number of Doses: 2 Doses.

Schedule: Follow the updated national routine immunization schedule.
**Two doses for those at 1 -12 years of age separated by 3 months and two doses for those more than or equal to ≥ 13 years of age separated by 4 weeks.*

Precautions: Moderate or severe acute illness with or without fever. Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product). Receipt of specific antivirals (i.e. acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination, if possible; delay resumption of these antiviral drugs for 14 days after vaccination.
Contraindications: 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 4 weeks after vaccination.
Side Effects: The vaccine is generally safe; however, local reactions including pain, redness, swelling and varicella-like rash at the injection site can occur. Fever and varicella-type rash is also reported. Serious reactions might occur rarely including some severe allergic reaction to vaccine component.

** 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)
Type of Vaccine: Diphtheria and Tetanus toxoids and inactivated Pertussis bacteria.
Minimum Age: 6 Weeks for DTP/DT and Tdap according to manufacturer
Dose: 0.5 ml
Site of Administration: Anterolateral aspect of the thigh for infants and deltoid muscle for older children and adults.
Route of Administration: Intramuscular.
Number of Doses: 3 doses and 3 boosters.
DT vaccine is replacing DTP containing vaccine if the child is allergic to pertussis component or if pertussis vaccine is contraindicated.
If tetanus vaccination is started during adulthood, a total of 5 doses are recommended to provide longer protection.

Schedule: Follow the updated national routine immunization schedule.
**For children less than 7 years, it is given as DTP, Td is given for children ≥ 7 Years through 10 years (according to manufacturer, while Tdap given routinely as booster dose for adolescents). For catch up vaccination of older population you may substitute Tdap vaccine for Td vaccine once.*
** Booster dose might be considered to be given every 10 years according to risk estimation.*
(If indicated and for those at higher risk of infection).
For catchup vaccination of adults receiving their primary immunization, the 1st and 2nd doses should be delivered with an interval of at least 4 weeks, and the 2nd and 3rd doses with an interval of at least 6 months. If the catch-up dose is the 3rd TTCV dose received, then an interval of at least 6 months is recommended between the 2nd and 3rd doses.
Precautions: Moderate or severe acute illness with or without fever. Guillain-Barre syndrome (GBS) < 6 weeks of previous dose of tetanus

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

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: progressive or unstable neurologic disorder (including infantile spasms), uncontrolled seizures, delay until neurologically stable and the neurological status verified. Also, 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

Contraindications: Severe allergic reaction after a previous dose or to a vaccine component. In addition, history of encephalopathy or evolving brain disease 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 can occur. Also, mild systemic reactions in the form of fever, aches and malaise, nodules and sterile abscess are also rarely reported. The severity and the occurrence of both local and systemic reactions increase with increasing number of vaccine doses administered previously. Febrile seizures, persistent crying lasting 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 reaction 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.*

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 and deltoid muscle for older children and adults.
Route of Administration: Intramuscular

Number of Doses: 3 doses and one booster dose.
This vaccine is given at 2, 4, 6 months and a booster dose at 18 months of age. The vaccine is not given routinely for children aged more than 5 years; however a single dose might be given for those ≥ 5 years of age with special health conditions including (sickle cell disease, anatomical and/or surgical asplenia, post bone marrow transplant and certain cancer after completion of treatment) and according to risk estimation by treating physician.

Schedule: Follow the updated national routine immunization schedule.
Precautions: Moderate or severe acute illness with or without fever.
Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.
Side Effects: The vaccine is generally safe. Injection site pain, tenderness and fever might occur. Rarely serious reaction such as severe allergic reactions to vaccine component might also 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: one year

Dose: check the dose 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

Hepatitis A Adult

Type of Vaccine: Inactivated virus.

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

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

Site of Administration: Deltoid muscle

Route of Administration: Intramuscular

Number of Doses: 2 Doses

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 grade fever might occur. However, rarely serious reaction such as severe allergic reactions to vaccine component might also 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: The dose for Hepatitis B child vaccine is10 µg (0.5 ml) for children.

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: 3 doses.

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

Hepatitis B Adult

Type of Vaccine: Inactivated

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

Dose: a dose of 20 µg (1 ml).

Site of Administration: Deltoid muscle

Route of Administration: Intramuscular

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

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

Side Effects: Hepatitis B vaccine is generally safe. Injection site pain, myalgia and fever can occur following administration of hepatitis B vaccine. Rarely serious reaction such as severe allergic reactions to vaccine component might also 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 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 and deltoid muscle for older children and adults.

Route of Administration: Intramuscular

Number of Doses for polio vaccines (OPV/IPV): 3 doses and 2 boosters

It is usually given at the age of 2, 4, 6, 18 months and 5 years. IPV used for those with congenital Immunodeficiency or Immunodeficiency by disease or immunosuppressive medication and their household contacts. Also, IPV replaced OPV for certain doses in the schedule.

Schedule: Follow the updated national routine immunization schedule.

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

Contraindications:

For Oral polio (OPV): Severe allergic reaction (e.g., anaphylaxis)

Poliomyelitis Vaccine (Cont.)

after a previous dose or to a vaccine component, severe combined immunodeficiency (SCID), severe immunodeficiency (e.g., from hematologic and solid tumors; chemotherapy; congenital immunodeficiency; or long-term immunosuppressive therapy; or patients with HIV).

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

Side Effects

For Oral polio (OPV): The most serious rare adverse reaction is vaccine associated paralytic poliomyelitis (VAPP).

For Inactivated polio (IPV): The vaccine is generally safe vaccine.

Local reaction including redness and soreness at the site of injection might occur. However, rarely serious reaction such as severe allergic reactions to vaccine component might also occur.

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

Measles, Mumps, Rubella Vaccines

Type of Vaccine: Live attenuated viruses.

Minimum Age: 12 Months

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: 2 Doses with minimum interval of 4 weeks.
This vaccine is given routinely to children. Also given to non-immune woman discovered during premarital counselling and also given in postnatally to rubella non immune women discovered during her pregnancy. In addition, the vaccine is given to certain health care workers and others at risk of infection.
This vaccine given routinely to children at the age of 12 months and 18 months, however it can be given to those susceptible at other ages provided no contraindication.

Schedule: Follow the updated national routine immunization schedule.

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

Measles, Mumps, Rubella Vaccines (Cont.)

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 and women should avoid getting pregnant for 4 weeks after vaccination.

Side Effects: MMR vaccine is generally safe. Fever and rash are among the adverse events of the vaccine. Parotitis, lymphadenopathy, arthralgia and thrombocytopenia also might occur. Rarely serious reaction such as severe allergic reactions to vaccine component might also 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 and deltoid muscle for older children and adults.

Route of Administration: Intramuscular

Number of Doses: Number of doses recommended depends on the age at first administration, manufacturer, and type of vaccine and risk status. Booster doses every 5 years are given for Hajj pilgrims and 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.

Schedule: Follow the updated national routine immunization schedule.

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

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

Side Effects: The vaccine is generally safe. Local reactions can occur including: redness, pain at the injection site and sometime fever might occur. Rarely serious reaction such as severe allergic reactions to vaccine component might also occur.

** The vaccine information and schedule subjected to change.*
*** Refer to vaccine packaging insert for more information regarding 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 and deltoid muscle for older children and adults.
Route of Administration: Intramuscular
Number of Doses: Two doses and one booster dose of PCV are usually given routinely for children. One dose of PCV13 can be given for adults of certain risk categories and elderly.

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 potential vaccine recipient, it is recommended to start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine with minimum interval of 8 weeks between them. However, if any individual received pneumococcal polysaccharide vaccine before then one year should pass prior to pneumococcal conjugate vaccine administration.

Precautions: Moderate or severe acute illness with or without fever.
Contraindications: Severe allergic reaction (e.g., anaphylaxis) after a previous dose PCV or to a vaccine component.
For PCV13, allergy to any diphtheria toxoid-containing vaccine is considered contraindication.

Side Effects: The vaccine is generally safe. Local reaction at injection site including pain, redness and swelling may follow. Fever, irritability, decreased appetite might occur. Rarely serious reaction such as severe allergic reactions to vaccine component might also 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 also it is recommended for any adults at 19 through 64 years with asthma or current cigarette smoking). Single revaccination dose after 5 years is recommended for certain high risk groups including: anatomical or functional asplenia (including sickle cell disease and other hemoglobinopathies), congenital or acquired immuno-deficiencies (including complement deficiencies, HIV) chronic renal failure, nephrotic syndrome, 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. 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 potential vaccine recipient, it is recommended to start with pneumococcal conjugate vaccine followed by pneumococcal polysaccharide vaccine with minimum interval of 8 weeks between them. However, if any individual received pneumococcal polysaccharide vaccine before then one year should pass prior to pneumococcal conjugate vaccine administration.

Pneumococcal polysaccharide Vaccine (PPSV) (Cont.)

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

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

Side Effects: The vaccine is generally safe, rarely serious reaction might occur such as severe allergic reactions to vaccine component. Local side effects, such as redness, swelling and pain at the injection site may follow. Systemic reaction including fever and myalgia also 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 viruses

Minimum Age: 6 Weeks

Dose: 1-2 mL depend on the manufacturer

Site of Administration: Orally

Route of Administration: Oral

Number of Doses: 2-3 doses according to manufacturer

Schedule: Follow the updated national routine immunization schedule.

Precautions:

- Moderate or severe acute illness with or without fever.
- Altered immunocompetence 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 reaction 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 (DTP, Hib, Hepatitis B, IPV) Vaccines

Type of Vaccine: Inactivated vaccine that contains (Diphtheria and Tetanus Toxoids, inactivated bacteria of pertussis, inactivated Hepatitis B virus, 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: 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, 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 regarding 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 regarding the vaccine.*

Tetravalent (DTaP +IPV) Vaccines

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

Minimum Age: 6 Weeks.

Dose: 0.5 ml

Site of Administration: 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 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 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 regarding the vaccine.*

Inactivated Seasonal Influenza Vaccine

Type of Vaccine: Inactivated virus.

Minimum Age: 6 months

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

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

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).

Inactivated Seasonal Influenza Vaccine (Cont.)

Contraindications:

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to avaccine component, including egg protein.

Side Effects: Influenza vaccine is generally safe. Local reactions at

injection site such as soreness, redness, or swelling might occur. Other reactions including fever, malaise, and myalgia might also occur. Rarely serious reaction 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 and nonavalent.

Minimum Age: 9 years.

Dose: 0.5 ml

Site of Administration: Deltoid muscle

Route of Administration: Intramuscular

Number of Doses: 2 doses for age 9-13 years and 3 doses from 14

years of age.

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

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

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

Side Effects: These vaccines are generally safe. Local reaction of

pain, erythema and swelling at injection site are common with the three types of the vaccines. Fever and other reactions including headache, dizziness, myalgia, arthralgia and gastrointestinal symptoms of (nausea, vomiting, and abdominal pain) can occur following vaccination with this vaccine with various frequencies. Serious adverse events attrib¬utable to the vaccine such as severe allergic reaction might rarely 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 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 any of the vaccine components or after a previous dose or to a vaccine component.

Side Effects: The vaccine is generally safe. If adverse events happened, it is mostly local adverse event. However, serious reaction such as severe allergic reaction might rarely 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: ≥ 9month. 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 who has had a 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, urticarial and rash may follow vaccination. Serious adverse event might less commonly to rarely occur including immediate severe hypersensitivity or anaphylactic reactions and neurological disease.

** 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 and deltoid muscle for older children and adults.

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

Number of Doses:

Pre-exposure prophylaxis (PrEP)

- ► a 1-site (1 vial per site) intramuscular (IM) regimen on days 0 and 7, or
- ► a 2-site (0.1 mL per site) intradermal regimen on days 0 and 7.
- ► Special regimens apply for immunocompromised subjects.
- ► Not part of routine schedule in kingdom of Bahrain.

Post exposure prophylaxis (PEP)

- Four doses for post exposure prophylaxis (PEP) depending on the manufacturer, route of administration and the nationally recommended regimen.
  - ► 1-site (1 vial per site) intramuscular on days 0, 3, 7 and 14–28, or
  - ► 2 sites intramuscular on day 0 and 1 site, intramuscular on days 7 and 21, or
  - ► 2-site (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*

Rabies Vaccine (Cont.)

Communicable Diseases Surveillance among human and based on reported data from control and Animal Health Directorate, rabies vaccines is recommended as post exposure prophylaxis in 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.

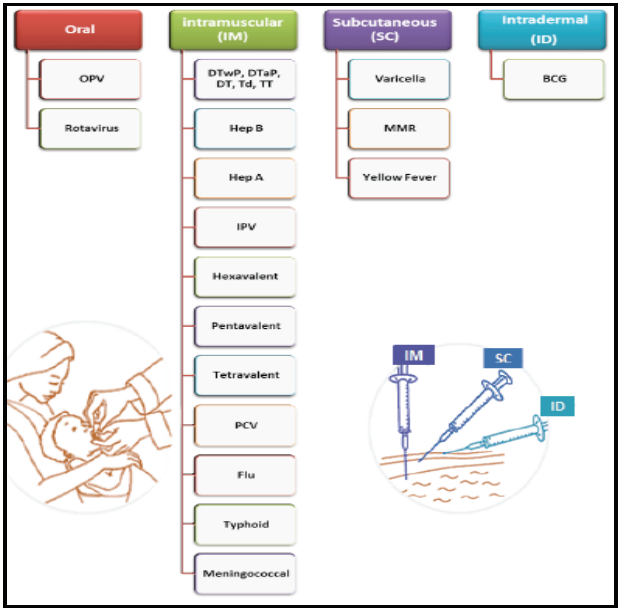
Precautions: Refer to the precautions of individual vaccine.

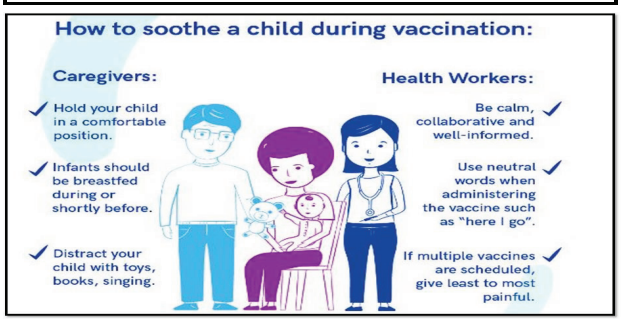
Contraindications: Moderate or severe acute illness with or without fever and severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. For more information refer to vaccination guide and refer to the contraindication in vaccine package insert (leaflet).

Side Effects: The vaccine is generally safe but serious reactions rarely occur. Most of the adverse events are mild including pain, redness and swelling at injection. Systemic reactions including fever, dizziness, headache and gastrointestinal symptoms may also occur.

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

Routes of vaccine administration





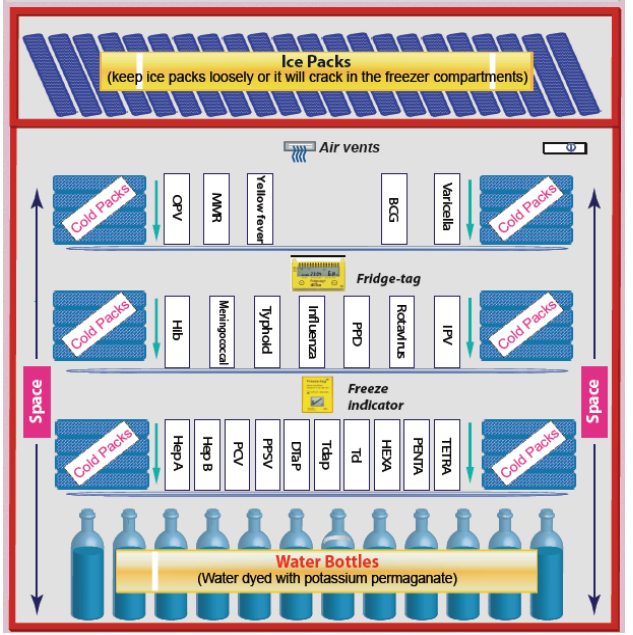
Reducing pain at time of vaccination

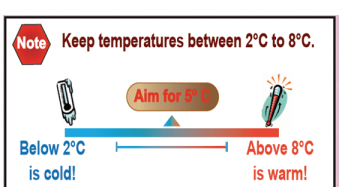
- Health care worker should use neutral language to educate the caregiver and vaccine reciepient
- Proper Positioning of the vaccine recipient according to the age
- Infants and young children should be held by caregiver
- Older Populations should sit upright
- Patients with history of fainting should 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

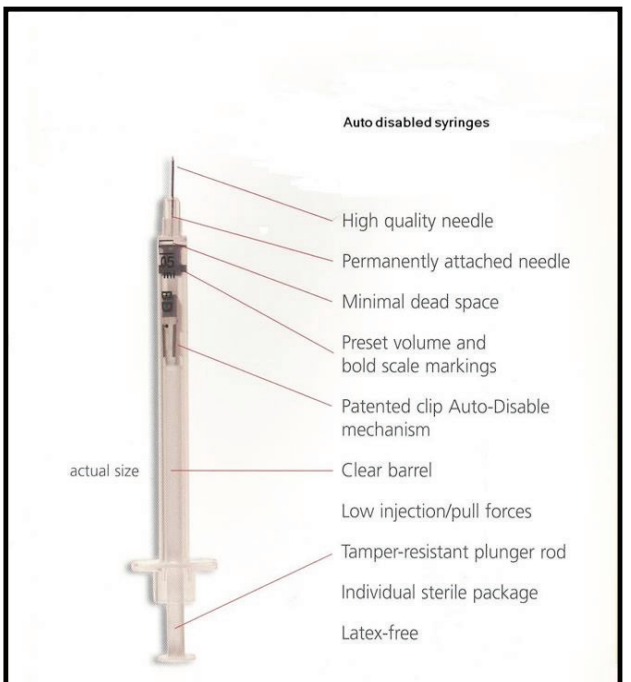
Carefully organizing vaccines in a refrigerator helps to protect vaccines and facilitates vaccines management





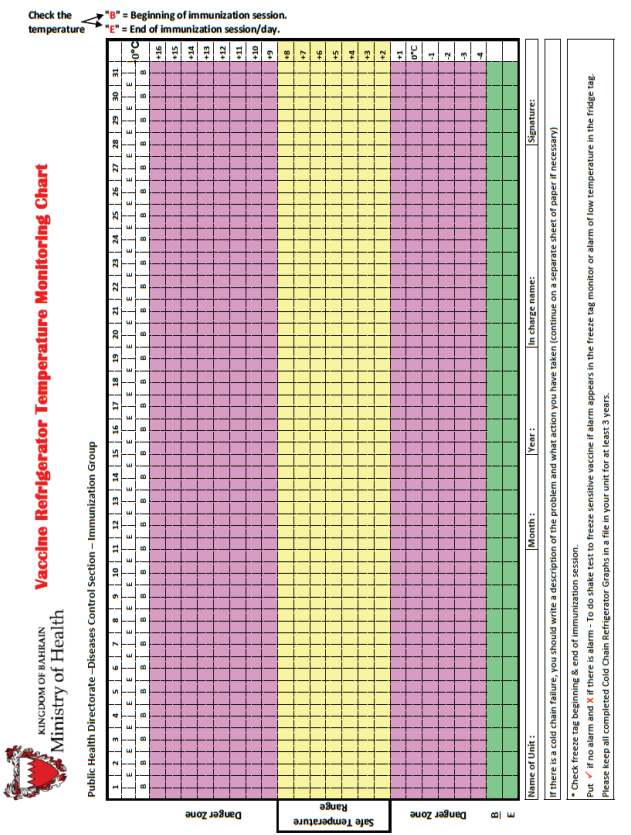
1. Keep temperature between 2°C to 8°C.
2. Keep 4cm space on each side and back for air flow.
3. Use cold packs and sealed water bottles to stabilize temperature.
4. Place fridge tag in center of refrigerator away from coils, walls , floor and fan.
5. Place freeze indicator with freeze sensitive vaccine.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

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

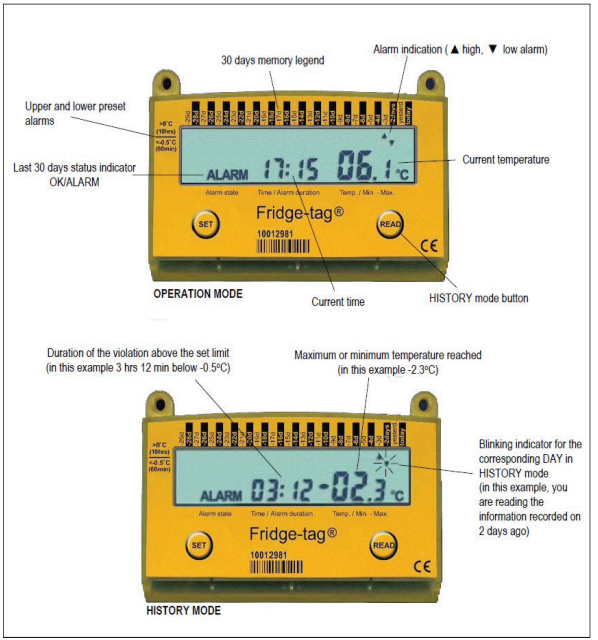


Vaccine Refrigerator Temperature Monitoring Chart

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?



Freeze indicator (Freeze tag):

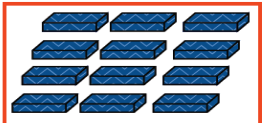
When alarm is shown, it indicates exposure to freezing temperature. Shake test is recommended for certain freeze sensitive vaccines. Report the incident and consult Disease control section at Public Health Directorate for recommendation.

HOW TO PREVENT FREEZE DAMAGE TO VACCINES ?

Freeze sensitivity	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)
	TT, DT, Td
	Influenza (inactivated, split)
	Hib (liquid)
	Inactivated poliovirus
Least sensitive	Typhoid polysaccharide

All these vaccines are damaged by freezing

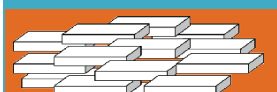
1. Keep temperatures between 2°C and 8°C at all times
2. Check and record temperatures at least twice daily.
4. Do not store vaccines in front of the refrigeration cold air stream.
5. Condition frozen Ice Pack until you can hear water when you shake them prior to use for transport of vaccine.
6. Transport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



Properly condition ice packs

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.

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

When to conduct shake test

How to perform the "Shake Test"

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

Step 2. Allow FROZEN vial to thaw completely.

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

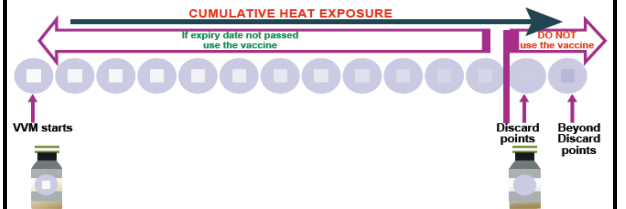
Step 4. Shake FROZEN and SUSPECT vials for 20 second.

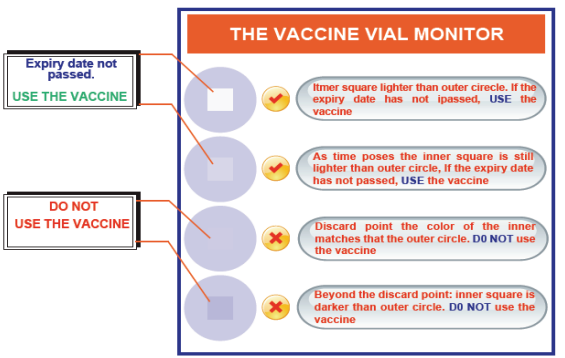
Step 5. Observe FROZEN and SUSPECT vials side-by side on aflat surface to compare how they sediment (5-15 minutes).

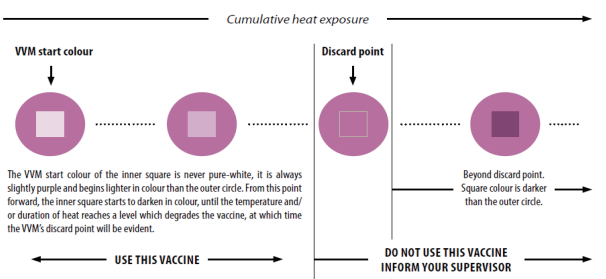
IF	THEN .....
IF SUSPECT **vial sediments slower than FROZEN vial**	USE VACCINE — Fully Potency
IF SUSPECT vial sediments at the same rate as or faster than **FROZEN** vial	DO NOT USE VACCINE — Diminished Potency

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

HOW TO USE VVM?



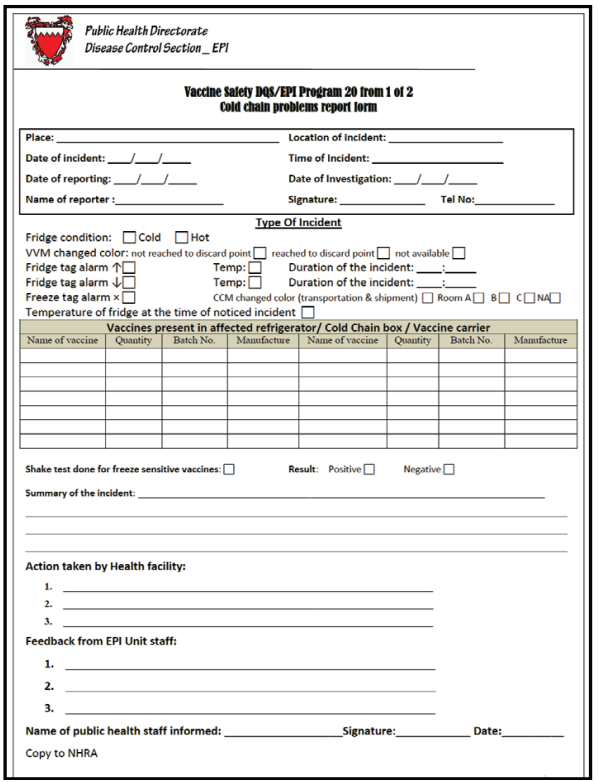




Cold chain problems reporting

Any violation or exposure to temperature outside recommended range should be reported (using cold chain problems/obstacles reporting form) to public health-disease control section (immunization group) to give recommendation and feedback based on several factors including temperature stability, accumulative exposure and duration of exposure.

Cold chainproblems /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, 13th 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/10665/183583/WHO_IVB_15.04_eng.pdf;sequence=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_guidelines_fridgetag.pdf
- **WHO. Managing an immunization session. Available at** https://www.who.int/immunization/documents/IIP2015_Module5.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.pdf