



وزارة الصحة
Ministry of Health

IMMUNIZATION SUMMARY GUIDE BOOKLET



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

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Importance of vaccination

- Vaccines provide safeguard against infectious diseases.
- Many infectious diseases are not seen these days due to the protection provided by vaccination of children, adolescents, adults and elderly.
- Vaccination provides protection to vaccine recipients and indirect protection to the community especially for people who cannot receive their vaccines due to medical reasons.
- Vaccinations are generally safe. The risks from diseases are much greater than the risks from vaccines.
- Vaccines are cost effective preventive measure. If the person got the infection, the cost of hospitalization, doctor visit and absence from work is high.

Recommended Immunization Schedule for the Kingdom of Bahrain

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

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Recommended Immunization Schedule for the Kingdom of Bahrain (contd)

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

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Recommended Immunization Schedule for the Kingdom of Bahrain (contd)

ADULT, ELDERLY AND HIGH RISK GROUPS	
Pneumococcal Conjugate (PCV)	Single dose for adults ≥ 50 years and single dose for adolescent, adult & elderly from high risk groups.
Pneumococcal Polysaccharide (PPSV23)	Single dose for ≥ 65 years and for high risk groups ≥ 2 -64 years. Revaccination dose after 5 years is recommended for certain high risk groups (Sickle cell disease/other hemaglobinopathies, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, malignancy, leukemia, lymphoma, iatrogenic immunosuppression, solid organ transplant).
Tdap	Single dose might be given to those at risk of infection.
Seasonal Influenza	Annually for each season from age of ≥ 6 months. It is recommended for children, adults ≥ 50 years and for high risk groups.
Chickenpox (varicella)	For high risk group without documented infection or vaccination. Two doses, 3 months apart from 1 -12 years of age and as 2 doses 4 weeks apart for ≥ 13 years of age.
Meningococcal conjugate ACWY	1-2 doses for sickle cell disease, certain hemoglobinopathies, congenital or acquired asplenia, pre-splenectomy, terminal complement deficiency, post bone marrow transplant & certain cancer after completion of treatment. Also it is given to traveler to Holly places, meningitis belt countries and countries reporting outbreak.
Haemophilus Influenza Type B (Hib)	Single dose for >5 years of age having any of the following conditions: sickle cell disease, anatomical and/or surgical asplenia, post bone marrow transplant and certain cancer after completion of treatment.

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Recommended Immunization Schedule for the Kingdom of Bahrain (contd)

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

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Vaccination for Special Risk Patients (contd)

Disease Condition	Vaccines Recommended	Doses
Diabetes Mellitus	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	Hepatitis B vaccine	3 doses
	Seasonal influenza vaccine	Single dose annually every season
	Tetanus/Diphtheria Toxoid (Td) or Tdap	Booster dose after the primary series
Heart disease/ Stroke	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
	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
	Seasonal influenza vaccine	Single dose annually every season
	Hepatitis A vaccine(if unvaccinated and otherwise indicated)	2 doses

Vaccination for Special Risk Patients (contd)

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

Vaccination for Special Risk Patients

Disease Condition	Vaccines Recommended	Doses
Sickle cell disease patients. Patients with functional or anatomical asplenia and pre-splenectomy	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose and revaccination dose after 5 years
	Hepatitis B vaccine	3 doses
	Hepatitis A vaccine (if unvaccinated and otherwise indicated)	2 doses
	Meningococcal vaccine	Single dose to be repeated if indicated
	Seasonal influenza vaccine	Single dose annually every season
	Haemophilus influenza type B (Hib) for those >5 years of age	Single dose
Cochlear implants	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
HIV (determined by treating physician)	Pneumococcal polysaccharide (PPSV)	Single dose and revaccination dose after 5 years
	Seasonal influenza vaccine	Single dose annually every season
	Pneumococcal Conjugate (PCV)	Single dose
	Hepatitis B vaccine	3 doses

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Vaccination for Special Risk Patients

Disease Condition	Vaccines Recommended	Doses
Post solid-organ transplant (determined by treating physician)	Hepatitis B vaccine	3 doses
	Pneumococcal Conjugate (PCV)	Single dose
	Pneumococcal polysaccharide (PPSV)	Single dose
Immunocompromised by malignancy/ Post Bone marrow transplant (determined by treating physician)	Refer to oncology and post bone marrow transplant guidelines,	
<p>* <u>Pneumococcal conjugate vaccine</u> (PCV) recommended as single dose for high risk groups and for people ≥ 50 years. Also, for high risk categories, start with PCV and to be followed by PPSV23 after at least 2 months from PCV. If PPSV23 was already given, interval of at least 1 year is recommended prior to PCV administration.</p> <p>** <u>Varicella vaccine</u> is recommended to certain risk categories such as sickle cell disease, non-immune healthcare workers in direct contact with patients, for healthy susceptible in close household contacts of immunocompromised patients (e.g. siblings of a child with leukemia, or a child whose parent is on chemotherapy), and chronic diseases patients that make them more vulnerable to complication of the infection and others determined by healthcare providers.</p>		

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Recommended and minimum ages and intervals between doses of routinely recommended 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	—
Haemophilus Influenzae type b Hib-1	2 months	6 weeks	4 weeks
Hib-2	4 months	10 weeks	4 weeks
Hib-3	6 months	14 weeks	8 weeks
Hib-4	18 months	12 months	—
Hepatitis A HepA-1	15 months	12 months	6 months
HepA-2	2 years	18 months	—

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

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

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
Pneumococcal conjugate PCV-1	2 months	6 weeks	4 weeks
PCV-2	4 months	10 weeks	4 weeks
PCV-3	6 months	14 weeks	8 weeks
PCV-4 (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	—
Pneumococcal polysaccharide PPSV-1	2 years (for high risk)	2 years	5 years (vaccine routine for certain high risk group)
Tetanus-diphtheria-acellular pertussis (Tdap)	13 years	7 years (according to manufactureure)	—

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 (MCV4)	2 years	Depend on manufacturer and type of vaccine	—
Influenza, inactivated	6 months or more	6 months	4 weeks
Human papillomavirus HPV-1	11-12 years	9 years	4 weeks
HPV-2	11-12 years (+ 2 months)	9 years (+ 4 weeks)	12 weeks
HPV-3	11-12 years (+ 6 months)	9 years (+24 weeks)	—

Guide to contraindications and precautions to commonly used vaccines

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Vaccine	Contraindications	Precautions
Hepatitis B (HepB)	<ul style="list-style-type: none"> Severe allergic reaction after a previous dose or to a vaccine component. 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Infant weighing less than 2000 grams (they might not respond well but are likely to respond with additional dose at age of 1 - 2 months)
Rotavirus RV1 (Rotarix)	<ul style="list-style-type: none"> Severe allergic reaction after a previous dose or to a vaccine component. Severe combined immunodeficiency (SCID), history of intussusception. uncorrected GI tract malformation. 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Altered immunocompetence. Chronic gastrointestinal disease. Spina bifida or bladder exstrophy.
Haemophilus influenzae type b (Hib)	<ul style="list-style-type: none"> Severe allergic reaction after a previous dose or to a vaccine component. Age < 6 weeks. 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever.
Inactivated poliovirus vaccine (IPV)	<ul style="list-style-type: none"> Severe allergic reaction after a previous dose or to a vaccine component. 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever.
Pneumococcal conjugate vaccine (PCV13)	<ul style="list-style-type: none"> Severe allergic reaction after a previous dose or to a vaccine component (including, for PCV13, to any diphtheria toxoid-containing vaccine). 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever.

Guide to contraindications and precautions to commonly used vaccines

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Vaccine	Contraindications	Precautions
Pneumococcal polysaccharide (PPSV23)	<ul style="list-style-type: none"> Severe allergic reaction after a previous dose or to a vaccine component. 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever.
Diphtheria, tetanus, pertussis (DTaP).	<ul style="list-style-type: none"> - Severe allergic reaction after a previous dose or to a vaccine component. - For pertussis-containing vaccines: <ul style="list-style-type: none"> Encephalopathy Evolving brain disease within 7 days of administration of a previous dose of DTP or DTaP (for DTaP); or of previous dose of DTP, DTaP, or Tdap (for Tdap). 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever. Guillain-Barre syndrome (GBS) within 6 weeks of tetanus toxoid-containing vaccine. History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine. For pertussis-containing vaccines: progressive or unstable neurologic disorder (including infantile spasms for DTaP), uncontrolled seizures. For DTaP: if any of the following occur within 48 hrs of previous vaccination. <ul style="list-style-type: none"> Temperature 40.5°C. Collapse or shock-like state (hypotonic hyporesponsive episode). Seizure within 3 days after receiving a previous dose of DTP/DTaP. Persistent, inconsolable crying lasting 3 or more hours.
Tetanus, diphtheria (DT, Td).		

Guide to contraindications and precautions to commonly used vaccines

Vaccine	Contraindications	Precautions
Oral poliovirus vaccine	<ul style="list-style-type: none"> » Allergy. » Known case of severe immunodeficiency (chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or HIV infection and who are severely immunocompromised) » Household contact of immunocompromised. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever.
Measles, mumps, rubella (MMR)	<ul style="list-style-type: none"> » Pregnancy. » Severe allergic reaction after a previous dose or to a vaccine component. » Known severe immunodeficiency by disease or medication. » Pregnancy. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever. » Recent receipt of antibody-containing blood product (specific interval depends on product). » History of thrombocytopenia or thrombocytopenic purpura. » Need for tuberculin skin testing (live injectable vaccines may interfere with TST reactions. If a TST, testing should be done, either to be performed on the same day as vaccination with live-virus vaccine or 4-6 weeks after the administration of the live-virus vaccine).
Varicella (Var)	<ul style="list-style-type: none"> » Severe allergic reaction (e.g. anaphylaxis) after a previous dose or to a vaccine component. » Known severe immunodeficiency by disease or medication. » Pregnancy. 	<ul style="list-style-type: none"> » 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, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.

Guide to contraindications and precautions to commonly used vaccines

Vaccine	Contraindications	Precautions
Hepatitis A (HepA)	<ul style="list-style-type: none"> » Severe allergic reaction after a previous dose or to a vaccine component. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever.
Influenza inactivated injectable (IIV)	<ul style="list-style-type: none"> » Severe allergic reaction after a previous dose of any influenza vaccine or to a vaccine component, including egg protein. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever » History of Guillain-Barré syndrome (GBS) within 6 weeks of previous influenza vaccination.
Human papillomavirus (HPV)	<ul style="list-style-type: none"> » Severe allergic reaction after a previous dose or to a vaccine component. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever. » Pregnancy
Meningococcal conjugate (ACWY)	<ul style="list-style-type: none"> » Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever.
Yellow Fever Vaccine	<ul style="list-style-type: none"> » 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. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever.
Typhoid vaccine (inactivated)	<ul style="list-style-type: none"> » Allergy to any of the vaccine components or to a previous dose of the vaccine. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever.
Rabies vaccine	<ul style="list-style-type: none"> » Allergic reaction to the vaccine or any of its components. 	<ul style="list-style-type: none"> » Moderate or severe acute illness with or without fever.

Polio Vaccines

There are two types of polio vaccines OPV & IPV.

Number of Doses: 3 doses and 2 boosters.

Schedule: 2, 4, 6, 18 months and 4-5 years.

NB: IPV only used for all doses for those with congenital immunodeficiency or immunosuppressive by disease on immunosuppressive medication. Also IPV is given to their household contacts.

Indication: Prevention of poliomyelitis.

Oral polio (OPV) Vaccine

Type of Vaccine: Live attenuated viruses

Minimum Age: 6 Weeks but can be administered at birth in special situation.

Dose: 2 drops for multi dose vial

Site of Administration: Orally

Route of administration: Oral

Storage Temp: 2 - 8 °C

Contraindication: Allergy, immunodeficiency or pregnancy.

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Polio vaccines (contd.)

Inactivated polio (IPV) Vaccine

Type of Vaccine: Inactivated polio viruses

Minimum Age: 6 Weeks

Dose: 0.5 ml

Site of Administration:

Infants and young children: anterolateral aspect of the thigh and for older children: deltoid muscle.

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergy to any component of IPV, including the antibiotics neomycin, streptomycin or polymyxin B. Severe allergic reaction to previous dose of IPV.

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Diphtheria, Tetanus, Pertussis (DTP) Vaccine

Type of Vaccine: DT. Toxoid and P. inactivated bacteria

Minimum Age: 6 Weeks

Dose: 0.5 ml

Number of Doses: 3 doses and 2 boosters

Schedule: 2, 4, 6, 18 Months and 4-5 years (it is usually given as part of combined vaccines: hexavalent / pentavalent / tetravalent for primary series and 1st booster. DTP or DTaP-IPV vaccine is administered for 2nd booster)

Site of Administration: Infants and young children: anterolateral thigh and for older children: deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction. History of brain and nervous system disease within 7 days after previous dose of DTP. Evolving brain disease or active encephalopathy. Severe reaction after a vaccine dose.

Indication: Combined vaccine that protects against diphtheria, tetanus, and pertussis.

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Tetanus, diphtheria, pertussis (Tdap) Vaccine

Type of Vaccine: Td.Toxoid and P. inactivated bacteria

Minimum Age: According to manufacturer. For Boostrix: 4 years.

Dose: 0.5 ml

Number of Doses: Booster dose

Schedule: Booster dose at age of 13 years (usually administered for school students as substitute for Td once, then Td booster dose every 10 years if indicated. Also, for those at higher risk of infection and /or its complications.

Site of Administration: Deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction after a dose of tetanus, diphtheria, and pertussis containing vaccine. Severe allergy to any component of the vaccine, history of coma, or prolonged seizure within 7 days after a previous dose of DTP or DTaP, unless a cause other than the vaccine was found. Td vaccine could replace Tdap for those allergic to pertussis component.

Indication: Prevention of diphtheria, tetanus and pertussis.

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Tetravalent vaccine (DTaP, Hib) Vaccine

Type of Vaccine: DT.(Toxoid), P. (inactivated bacteria), and H. influenza type B (inactivated)

Minimum Age : 6 Weeks

Dose: 0.5 ml

Number of Doses: 1 dose (as a booster)

Schedule: at age of 18 months

Site of Administration: Infants and young children: anterolateral thigh and for older children: deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: life-threatening allergic reaction to any of vaccine components. History of brain and nervous system disease within 7 days after previous dose of DTP. Evolving brain disease or active encephalopathy. Severe reaction after a vaccine dose.

Indication: Combined vaccine that protects against diphtheria, tetanus, pertussis and H. Influenza type B.

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Pentavalent (DTwP, Hep B +Hib) Vaccine

Type of Vaccine: DT. (Toxoid), P. (inactivated bacteria), hepatitis B (recombinant) and H.influenza type B (inactivated)

Minimum Age: 6 Weeks

Dose: 0.5 ml

Number of Doses: 1 Dose ± a booster

Schedule: 6 months, ± 18 Months (if tetravalent (DTaP, Hib) vaccine is unavailable)

Site of Administration: Infants and young children: anterolateral thigh and for older children: deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction to any of vaccine components. History of brain and nervous system disease within 7 days after previous dose of DTP. Evolving brain disease or active encephalopathy. Severe reaction after a vaccine dose.

Indication: Combined vaccine that protects against diphtheria, tetanus, pertussis, hepatitis B and H. Influenza type B.

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Hexavalent vaccine (DTaP, HiB, Hep B + IPV) Vaccine

Type of Vaccine: DT.(Toxoid), P. (inactivated bacteria), hepatitis B (recombinant), H. influenza type B (inactivated) and injectable polio vaccine (inactivated)

Minimum Age: 6 Weeks

Dose: 0.5 ml

Number of Doses: Two doses according to current routine schedule.

Schedule: 2, 4 months

Site of Administration: Infants and young children: anterolateral thigh and for older children: deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction to any of vaccine components. History of brain and nervous system disease within 7 days after previous dose of DTP. Evolving brain disease or active encephalopathy. Severe reaction after a vaccine dose.

Indication: Combined vaccine that protects against diphtheria, tetanus, pertussis, hepatitis B, H. Influenza type B and poliomyelitis.

DT Child Vaccine

Type of Vaccine: Toxoid

Minimum Age: 6 Weeks

Dose: 0.5 ml

Number of Doses: 3 Doses + 2 boosters

Schedule: 2, 4, 6, 18 months and 4- 5 years. It is used for those who are allergic to pertussis vaccine as replacement of DTP in any of the combined vaccines containing pertussis.

Site of Administration: Infants and young children: anterolateral thigh and for older children: deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

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

Indication: Prevention of diphtheria and tetanus in children when DTP vaccines can't be used due to allergy or contraindication to pertussis component of the vaccine.

Td Adult Vaccine

Type of Vaccine: Toxoid

Minimum Age: Children ≥ 7 years of age (check according to manufacturer)

Dose: 0.5 ml

Number of Doses: 3 Doses +2 boosters for total 5 doses for those not previously immunized, however, one dose might be replaced by Tdap. Also, it is usually given as a booster dose every 10 years.

Schedule: 2 doses 4 weeks apart, 3rd dose after 6-12 months with subsequent boosters for total of 5 doses. Booster dose every 10 years might be given after completion of the primary series if indicated.

Site of Administration: Deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

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

Indication: Prevention of diphtheria and tetanus in adolescent, adults and previously unimmunized women at reproductive age group.

Tetavalent vaccine (DTaP-IPV)

Type of Vaccine: DT.(Toxoid), P. (inactivated bacteria), and injectable polio vaccine (inactivated)

Minimum Age: 6 Weeks

Dose: 0.5 ml

Number of Doses: one dose according to current routine schedule.

Schedule: 4-5 years.

Site of Administration: Young children: anterolateral thigh and for older children: deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction to any of vaccine components. History of brain and nervous system disease within 7 days after previous dose of DTP. Evolving brain disease or active encephalopathy. Severe reaction after a vaccine dose.

Indication: Combined vaccine that protects against diphtheria, tetanus, pertussis and poliomyelitis.

Chicken pox (Varicella) vaccine

Type of Vaccine: Live attenuated virus.

Minimum Age: 12 months .

Dose: 0.5 ml.

Number of Doses: 2 doses routinely for children ≥ 1 year. Also, it is given for certain risk groups and close contacts of immunosuppressed, unless there is a vaccine contraindication.

Schedule: 2 doses 1-12 years, at least 3 months apart and 2 doses for ≥ 13 years of age, minimum interval between the 2 doses is 4 weeks.

Site of Administration: Infants and young children: anterolateral aspect of the thigh. For older children and adults: deltoid.

Route of administration: Subcutaneous (SC).

Storage Temp: 2 - 8 °C.

Contraindication: Hypersensitivity to any of the vaccine components including neomycin or gelatin Also, pregnancy, primary and acquired immunodeficiency. Women should be advised for contraception and to avoid getting pregnant for 4 weeks after vaccination.

Indication: Protection against Chickenpox disease.

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MMR Vaccine

Type of Vaccine: Live attenuated viruses

Minimum Age: 12 Months

Dose: 0.5 ml

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

Schedule: 12 months, 18 months. Also it is given to rubella non-immune woman discovered during premarital counselling and in postnatal period for rubella non immune women discovered during pregnancy. Also, it is given for certain healthcare workers and other at risk of infection. Contraception is advised for at least 4 weeks after vaccination of women at reproductive age group.

Site of Administration: Infant and young children: anterolateral thigh. For older children and adults: deltoid.

Route of administration: Subcutaneous (SC)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction to the antibiotic neomycin, or any other component of MMR vaccine, primary and acquired Immunodeficiency and pregnancy.

Women should be advised for contraception and to avoid getting pregnant for at least 4 weeks after vaccination.

Indication: Prevention of measles, mumps, and rubella infection.

28

Hepatitis B vaccine for children

Type of Vaccine: Recombinant

Minimum Age: Birth

Dose: 10 µg (0.5 ml)

Number of Doses: 3-4 doses

Schedule: 0,2,4,6 months. Birth dose is recommended for newborns within 12-24 hours of birth and it is given as monovalent vaccine. Both Hep B vaccine and Hep B immunoglobulin are given at birth for infant of HBs Ag positive mother or of unknown HBsAg status.

Site of Administration: Infants and young children: anterolateral aspect of the thigh, older children adolescent and adults: deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergy to yeast, or any component of the vaccine, or to a previous dose of the vaccine. For low birth weight newborns (<2000g) the birth dose might not be counted as they might not respond well to the vaccine, however they are likely to respond with additional dose at age of 1-2 months.

Indication: Protection against hepatitis B infection and hepatocellular carcinoma associated with hepatitis B infection.

29

Hepatitis B vaccine for adults

Type of Vaccine: Recombinant

Minimum Age: ≥ 20 years (check age and dose according to manufacturers).

Dose: 20 µg (1ml)

Number of Doses: 3 doses

Schedule: 0,1,6 months for people at risk of hepatitis B infection.

Site of Administration: Deltoid

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergy to yeast, or any component of the vaccine, or to a previous dose.

Indication: Protection against hepatitis B infection and hepatocellular carcinoma associated with the infection.

30

Hepatitis A vaccine for children

Type of Vaccine: Inactivated

Minimum Age: 1 year

Dose: Hep A 720: 0.5 ml (check the dose and recommended age according to manufacturer)

Number of Doses: 2 Doses

Schedule: Routinely at age of 15 months and 24 months. Also, its given to travelers to certain countries and for those at risk of infection.

Site of Administration: Infants and young children: anterolateral thigh.

For older children and adolescent: deltoid muscle.

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergy to any component of the vaccine, or to a previous dose of hepatitis A vaccine.

Indication: Protection against hepatitis A Infection.

31

Hepatitis A vaccine for adults

Type of Vaccine: Inactivated

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

Dose: 0.5 ml for Hep A 160 , while for Hep A 1440 the recommended dose is 1ml (check according to manufacturer)

Number of Doses: 2 Doses

Schedule: 2 doses given 6 to12 months apart for those at risk of infection including travelers, certain occupational staffs.

Site of Administration: Deltoid

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergy to any component of the vaccine, or to a previous dose of hepatitis A vaccine.

Indication: Protection against hepatitis A Infection.

32

Meningococcal ACYW- Conjugate Vaccine (MCV4)

Type of Vaccine: Inactivated

Minimum Age: According to manufacturer

Dose: 0.5 ml

Number of Doses: 1-2 doses, to be repeated according to the recommendation based on age, manufacturer and risk categories.

Schedule: Routinely for 2 years children. Also for travelers to holly places and travelers to at risk destinations such as african Meningitis belt and countries reporting meningitis outbreak. Other population at risk for acquiring infection or complication from infection such as sickle cell disease, certain hemoglobinopathies, congenital or acquired asplenia, pre-splenectomy, terminal complement deficiency, post bone marrow transplant & certain cancer after completion of treatment (to be determined by treating physician).

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

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction to a previous dose or any of the vaccine components.

Indication: Protection against meningococcal serotypes A,C,W,Y infection.

33

Seasonal Influenza Vaccine

Type of Vaccine: Inactivated

Minimum Age: 6 months

Dose: 0.25 ml for age between 6 - 35 months OR 0.5 ml if age 3 years or older

Number of Doses: 2 doses for children < 9 years receiving influenza vaccine for the first time and single dose thereafter.

Schedule: Annually every fall and winter season for high risk groups including people with certain chronic medical conditions. Also, the vaccine is recommended for children ≤ 5 years of age, adults ≥ 50 years, healthcare workers, pregnant woman and other categories determined by treating physicians.

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

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Infants below 6 months, severe reaction to previous Influenza (flu) vaccine dose or severe allergy to any of the vaccine components. Guillain-Barre Syndrome (a severe paralytic illness- GBS) within 6 weeks of previous Flu dose.

Indication: Prevention of influenza caused by certain influenza viruses.

34

Typhoid Vaccine

Type of Vaccine: Inactivated (Polysaccharide).

Minimum Age: ≥ 2 years.

Dose: 0.5 ml.

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

Schedule: Given to people at occupational risk and travelers to endemic countries.

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

Route of administration: Intramuscular (IM).

Storage Temp: 2 - 8 °C.

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

Indication: Protection against typhoid fever caused by salmonella typhi.

Yellow Fever Vaccine

Type of Vaccine: Live attenuated virus

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

Dose: 0.5 ml

Number of Doses: single dose

Schedule: Given to travelers to and from areas at risk of yellow fever infection.

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

Route of administration: Subcutaneous (SC)

Storage Temp: 2 - 8 °C

Contraindication: 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 and pregnancy.

Indication: Protection against yellow fever infection.

Pneumococcal Polysaccharide (PPSV23) Vaccine

Type of Vaccine: Inactivated

Minimum Age: ≥ 2 years

Dose: 0.5 ml

Number of Doses: Single dose for ≥ 65 years and for high risk groups $\geq 2 - 64$ years. Revaccination dose after 5 years is recommended for certain high risk groups including (sickle cell disease/other hemoglobinopathies, congenital or acquired asplenia, congenital or acquired immuno-deficiencies, chronic renal failure, nephrotic syndrome, certain malignancy determined by treating physician such as leukemia, lymphoma. Also, for iatrogenic immunosuppression and solid organ transplant (determined by treating physician).

Schedule: It is advised to start with pneumococcal conjugate vaccine, then administer pneumococcal polysaccharide after 6-12 months (minimum interval after 8 weeks from pneumococcal conjugate vaccine). For those who are vaccinated previously with pneumococcal polysaccharide, administer pneumococcal conjugate vaccine after one year.

Single dose for ≥ 65 years and single dose for high risk groups $\geq 2-64$ years. Revaccination dose after 5 years recommended for certain high risk groups.

37

Pneumococcal Polysaccharide (PPSV23) Vaccine (contd.)

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

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Serious (life-threatening) allergic reaction to a previous dose of the vaccine, or to any of vaccine components.

Indication: Prevention of invasive pneumococcal disease in 65 years adults. Also, it prevents infection in those at age of 2 through 64 years of age with chronic health problem e.g. chronic heart disease, chronic lung disease, sickle cell disease, diabetes, alcoholism, cirrhosis, leaks of cerebrospinal fluid or cochlear implant, or a disease or condition that lowers the body's resistance to infection (to be determined by treating physician) such as: Hodgkin's disease lymphoma or leukemia, kidney failure, multiple myeloma, or organ transplant or individual taking immunosuppressive medication, such as long-term steroids or being treated with chemotherapy or radiation therapy. Also, for nephrotic syndrome, HIV infection, damaged spleen, or asplenia. Additionally for adults 19 through 64 years of age who is a smoker or has asthma.

38

Pneumococcal conjugate (PCV) Vaccine

Type of Vaccine: Inactivated

Minimum Age: 6 Weeks

Dose: 0.5 ml

Number of Doses: Routinely for healthy children as 2 doses and one booster. For high risk infants 3 doses and booster, single dose for adult \geq 50 yrs (according to manufacturer). Also, single dose is recommended for high risk groups who didn't receive the vaccine previously.

Schedule: 2 and 4 months and booster at 12-15 months for children (2, 4, 6 months and booster at 12 - 15 months of age for high risk children) and as a single dose for adult \geq 50 yrs (according to manufacturer). Also, it is given for other age groups at risk including (chronic health problem e.g. diabetes mellitus, chronic heart disease, stroke, sickle cell disease, chronic renal failure including renal dialysis patients, chronic liver disease, chronic lung disease, sickle cell disease patients, patients with functional or anatomical asplenia and pre-splenectomy and other diseases or immunosuppressive conditions or its complications).

Site of Administration: Infant and young children: anterolateral thigh. For older children and adult : deltoid muscle.

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Serious (life-threatening) allergic reaction to a previous dose of the vaccine, or to any of the vaccine components.

Indication: Prevention of invasive pneumococcal disease.

BCG Vaccine

Type of Vaccine: live attenuated bacteria

Minimum Age: At birth

Dose: For < 1 year of age 0.05ml, for > 1 year of age 0.1ml

Number of Doses: One dose

Schedule: Given at birth to selected target i.e. at risk infants including new born of parents originally from TB endemic countries. Also, recommended for other selected groups of children based on risk of exposure and risk of complication (determined by treating physician).

Site of Administration: left deltoid

Route of administration: intradermal

Storage Temp: 2 - 8 °C

Contraindication: Congenital or acquired immunodeficiency and HIV. Severe progressive dermatitis might be considered as temporary contraindication until it is resolved.

Indication: Protection against severe form of tuberculosis e.g. meningeal and miliary tuberculosis.

Rotavirus Vaccine

Type of Vaccine: live attenuated virus

Minimum Age: 6 Weeks

Dose: 1-2 mL depend on the manufacturer

Number of Doses: 2-3 doses According to manufacturer

Schedule: 2 and 4 months of age (the requirement of a third dose depends on vaccine manufacturer)

Site of Administration: Orally

Route of administration: Oral

Storage Temp: 2 - 8 °C

Contraindication: Severe allergic reaction to a dose of rotavirus vaccine or allergy to any component of vaccine including allergy to latex. Also, severe combined immunodeficiency (SCID), primary and acquired immunodeficiency. History of uncorrected congenital malformation of GI tract or intussusception also considered contraindication.

Indication: Prevention of moderate to severe gastrointestinal disease caused by rotaviruses.

41

Rabies Vaccine

Type of Vaccine: Inactivated

Minimum Age: According to manufacturer

Dose: 0.5 ml or 1 ml depend on the type of vaccine

Number of Doses: 4-5 doses for post exposure. Pre Exposure: 3 doses, one dose on each of days 0, 7, 21 or 28.

Schedule: Post exposure: 5-dose: 1 dose on each of days 0, 3, 7, 14 and 28 OR 4 doses: 2 doses on day 0 (1 in each site either deltoid or thigh) followed by 1 dose on each of days 7 and 21.

Site of Administration: Young children: anterolateral thigh. For older children and adults: deltoid muscle.

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Allergic reaction to the vaccine or any of its components. The risk of exposure to rabies to be evaluated against any contraindication to the vaccine

Indication: Protect those at risk for rabies based on exposure risk.

42

Haemophilus influenzae type B (Hib) vaccine

Type of Vaccine: Inactivated

Minimum Age: 6 Weeks

Dose: 0.5 ml

Number of Doses: 3 doses and booster

Schedule: 2,4,6 and a booster at 18 months of age usually given as part of Hexavalent, Pentavalent, Tetravalent vaccines. Children over 5 years old usually do not usually need Hib vaccine. However Hib vaccine might be recommended for those > 5 years of age with special health conditions (sickle cell disease patients, patients with functional or anatomical asplenia and pre-splenectomy. Also, it might be recommended for post bone marrow transplant, or after cancer treatment (to be determined by treating physicians).

Site of Administration: Infant and young children: anterolateral aspect of the thigh. For older children: deltoid muscle.

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Severe allergic reaction to the vaccine or any of its components

Indication: Prevention of Hib related diseases including epiglottitis, meningitis, bacteremia.

43

Human papilloma virus vaccine (HPV)

Type of Vaccine: Inactivated

Minimum Age: 9 years (bivalent vaccine for girls, quadrivalent vaccines for boys and girls)

Dose: 0.5 ml

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 6 months), 3 doses : (during initial visit, 2nd dose: 1 to 2 months after dose 1 and 3rd dose: 6 months after dose 1).

Site of Administration: Deltoid muscle

Route of administration: Intramuscular (IM)

Storage Temp: 2 - 8 °C

Contraindication: Life-threatening allergic reaction to any components of HPV vaccine, or to a previous dose of HPV vaccine, HPV vaccine is generally not recommended for pregnant women.

Indication: Quadrivalent vaccine (HPV4): prevent certain HPV related genital warts and cervical, vaginal and vulvar cancers in women, and anal cancers in both men and women, while bivalent vaccine (HPV2): prevent certain HPV related cervical cancer in females.

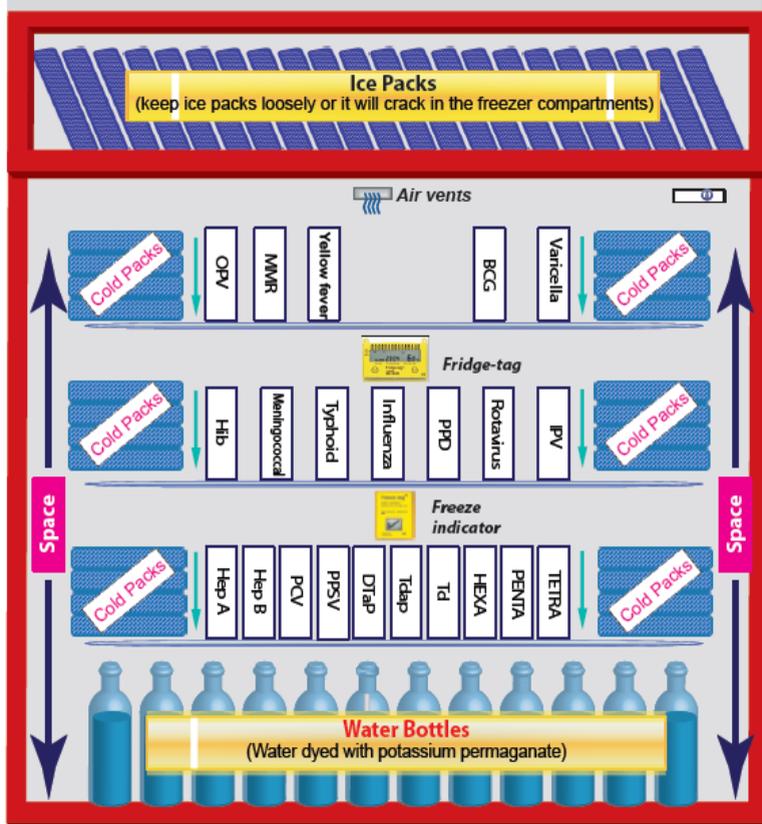
44

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 manufacturer's 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.

WARNING!
Do not unplug the vaccine fridge or break circuit.
Expensive vaccine in storage.
In the event of electrical problem, immediately contact:
Maintenance

- 
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.

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



HOW TO READ FRIDGE-TAG?



OPERATION MODE

Duration of the violation above the set limit
(in this example 3 hrs 12 min below -0.5°C)

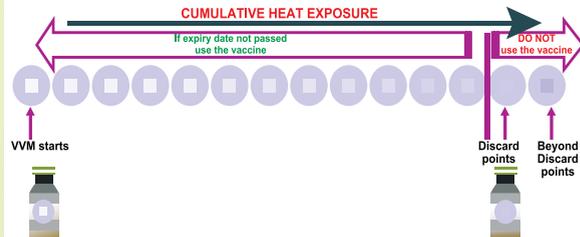
Maximum or minimum temperature reached
(in this example -2.3°C)



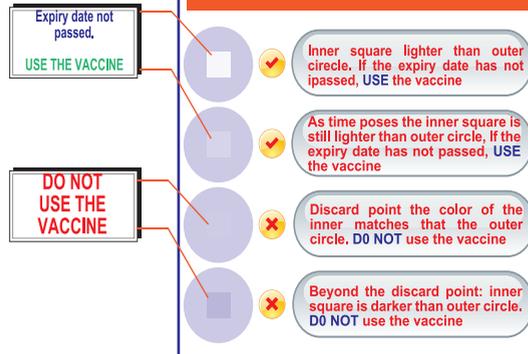
HISTORY MODE



HOW TO USE VVM?



THE VACCINE VIAL MONITOR



SHAKE TEST:

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

When to conduct shake test



How to perform the "Shake Test"

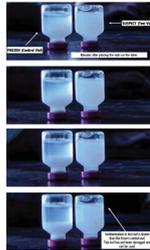
Step 1. Select one sample from each type and batch of "SUSPECT" vaccine. Freeze a vial until it is solid; this will be your control vial – call it "FROZEN".

Step 2. Allow FROZEN vial to thaw completely.

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

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

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



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

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

HOW TO PREVENT FREEZE DAMAGE TO VACCINES ?

A VERY USEFUL "TIP" TO REMEMBER WHICH VACCINES SHOULD NOT BE FROZEN IS TO LOOK FOR THE "FF" IN THE NAME OF THESE VACCINES. EXAMPLE: DTP, DT, Td, TT, HEPATITIS B, Hib TYPE B, AND EVEN DILTUMET



1. Keep temperatures between 2°C and 8°C at all times

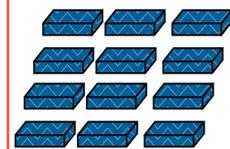
2. Check and record temperatures at least twice daily.

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.

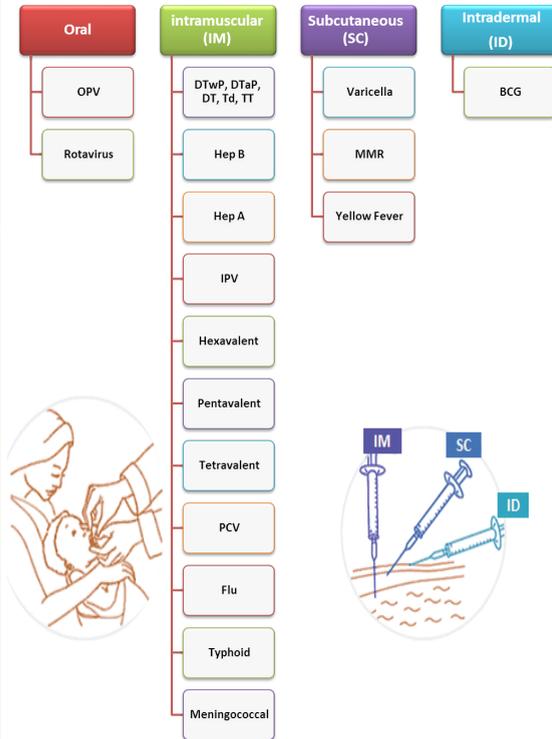
6. Transport vaccines by prequalified cold chain box with monitors

Freeze sensitivity	Vaccines
Most sensitive  All these vaccines are damaged by freezing  Least 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	
Typhoid polysaccharide	



Properly condition ice packs

ROUTE OF ADMINISTRATION



Multi-dose Vial Policy (MDVP)

BCG	discarded at the end of the immunization session, or within six hours of opening whichever comes first.
OPV	7 days
DT child	7 days
** Time and date should be mentioned on the opened vials	



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

Auto disabled syringes

