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Review on inter-variations of National Immunization Schedule in Marathwada-- Region of Maharashtra.

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Abstract

Previously food, shelter and cloths were the three basic needs of human-beings. But nowadays, Health and Education are added with above three. Healthy Life is a God Gift. But we can try to be healthy. Prevention is better than cure. Some diseases can be prevent by vaccination-These are called-Vaccine Preventable Diseases—V.P.D'S. or by giving vaccine of specific disease, the severity of that disease is reduced in immunized child. There will be no any complications of that disease in that child.

In this article, I have covered Current National Immunization Schedule, inter-variations in NIS of Marathwada. Due to epidemic outbreaks of JE in Latur & Beed, NIS included JE vaccine for these two Districts in Routine Immunization.

Immunization is the process whereby a person is made immune or resistant to an infectious disease,typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against the subsequent infection or disease.Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year.

Key words

The keywords are Immunization, Vaccination.

Introduction-

The science of vaccine evolved across the globe in late 19thcentury & India was amongst a few countries to have been involved in these efforts.Vaccine Institutionswere set up in early & whole of twentieth century. Small-Pox has been eradicated &the country has become **Poliomyelitis** free since **JAN. 2011.**

India is a big country in population.There are so many other states other than Maharashtrain India.There are inter &intra-state variations in the coverage.Immunization Programme in India started with the aim to reduce **VPD'S.**

In recent Years,**Immunization Program** has been undergonea number of significant changes**.**These include a new policy environment **(N.R.H.M.),**new vaccines **(e.g.Hepatitis B, Pentavalent, and I.P.V.)**,new procedures to solve old problems (Inj.safety) andnew technologies for vaccine delivery and cold chain.Such changes underscore the need for constant attention,sharing of experiences. There is creativity and flexibility in responding to problems.

I have selected the topic that –"**Review on inter-variations of N.I.S. in Marathwada".** It is one of the five regions in Indian state of Maharashtra.In **Marathwada** there are 08 Districts-**Aurangabad, Jalna, Nanded, Beed, Latur, Usmanabad, Hingoli, and Parbhani. Capital – Aurangabad.** The vaccine of **JE** is given only in **Latur and Beed.** Due to epidemic outbreaks of JE in Latur & Beed, Government arranged JE vaccine in NIS for these only two districts.

The first vaccine to be introduced in India was BCG in 1962 as a part of the National Tuberculosis Programme. Over the years, various new vaccines have been introduced & many milestones achieved.

Immunization Milestones --

1978	Expanded programme of Immunization-BCG,DPT,OPV,Typhoid (urban areas)
1983	TT Vaccine for pregnant women.
1985	Universal Immunization Programme-Measles added, Typhoid removed, Focus on children less than 1 year of age.
1990	Vitamin A supplementation.
1995	Polio National Immunization Days.
1997	VVM introduced on vaccines in UIP.
2002	Hep B introduced as pilot in 33 districts & cities of 10 states.
2005	▪ "National Rural Health Mission" Launched. ▪ Auto Disable (AD) syringes introduced in UIP.
2006	JE vaccine introduced after campaigns in endemic districts.
2007-2008	Hep-B expanded to all districts in 10 states & schedule revised to 4 doses from 3 doses.
2010	Measles 2nd dose introduced in RI & MCUP (14 states).
2011	▪ Hepatitis B universalized & Haemophilus influenza type B introduced as Pentavalent in 2 states. ▪ Open Vial Policy for vaccines in UIP.
2013	▪ Pentavalent expanded to 9 states. ▪ Second dose of JE vaccine.
2014	India & South East Asia Region certified Polio-Free.
2015	▪ India validated for Maternal & Neonatal Tetanus elimination. ▪ Pentavalent expanded to all states. ▪ IPV introduced. ▪ New Vaccines introduction announced—Rotavirus, Pneumococcal & Measles / Rubella.
2016	In phase 1st –Rotavirus Vaccine introduced in 4 states.

Vaccine and Vaccine preventable diseases-Vaccines currently used in NIS.

Name of vaccine	Diseases Prevented
BCG Vaccine	Tuberculosis.
DPT Vaccine	▪ Diphtheria. ▪ Pertussis (Whooping Cough). ▪ Tetanus.
Hepatitis B Vaccine	Hepatitis-B.
Japanese Encephalitis Vaccine (only in Latur & Beed in Marathwada)	Japanese Encephalitis.
Measles Vaccine	Measles.
Oral Polio Vaccine (OPV)	Polio
Pentavalent Vaccine	▪ Diphtheria. ▪ Pertussis. ▪ Tetanus.

	▪ Hepatitis B. ▪ Meningitis and Pneumonia.
Tetanus Toxoid	Maternal and Neonatal Tetanus.
IPV	Polio.

Aim & Objective

Review on inter-variations of National Immunization Schedule in **Marathwada Region.**

About Vaccines

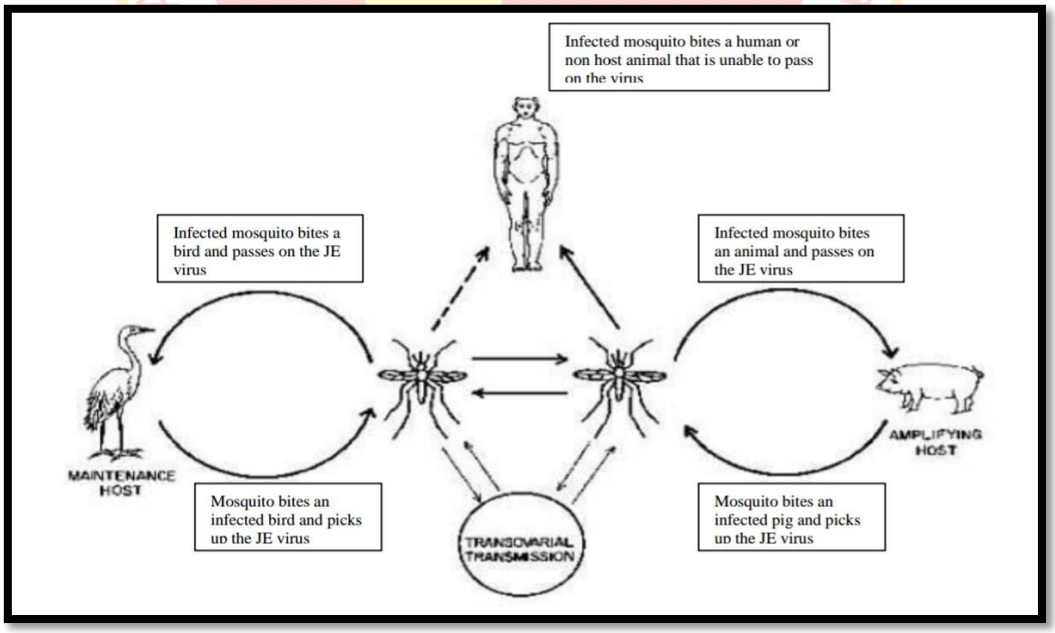
In immunization programme to maintain the cold chain is very important. Cold chain is the back bone of this programme. Cold chain system is perfectly maintained by Government. Currentiy 09 (Nine) vaccines are included in NIS including JE vaccine. I am only focusing on JE vaccine in this article .Because, in Marathwada two high risk districts for JE are Latur & Beed.

From 2009, after the mass campaign for JE in Latur & Beed, JE vaccine included in NIS for these two districts of Marathwada. Remaining 06 districts are receiving all vaccines as per NIS except JE vaccine. I have given detail chart of vaccines.

Japanese Encephalitis

Japanese Encephalitis is the leading viral cause of Acute Encephalitis Syndrome (AES) in Asia.The disease primarily affects children under the age of 15yrs. 70% of those who develop illness either die or survive with a long term neurological disability.The 1st case of JE was documented in late 19th century.

Japanese Encephalitis is caused by the Japanese Encephalitis Virus which is a RNA Belonging to the Flavivirus family (which also consists of the Dengue and Yellow Fever viruses).It is an arbovirus transmitted via mosquitoes.The natural life-cycle of this virus is between Culexmosquitoes and cattle,pigs and birds such as heron.Water birds and pigs play a major role as amplifying hosts.Humans get infected following a bite by an infected mosquito. However, as human are dead end hosts, further spread from human to human does not take place.



Periodic outbreaks of JE occur in states like Maharashtra, Madhya Pradesh etc. Majority of the cases occur in rural, agricultural (specially rice growing) and forest areas and in children.

Details for administration of JE vaccine

Type of vaccine	Live attenuated SA-14-14-2 JE vaccine
Presentation	Multi-dose vials with 5 doses as a lyophilized powder that looks like a milky-white crisp cake. Diluent vial of 2.5ml.
Reconstitution	The vaccine should be reconstituted with the supplied diluent only. After reconstitution it turns in to a transparent orange red or light pink.The reconstituted vaccine should not be used beyond two hours of reconstitution.
Dose,Route, Schedule	**Dose---------0.5ml.** **Route--------Subcutaneous.** **Schedule----1st Dose9—12 months.** **2nd Dose 16—24 months.**
Administration of vaccine	▪ Vaccine should be administered with Auto-Disable (AD) syringes only. ▪ The vaccine should be injected sub-cutaneous in the upper left arm (below the usual site of the BCG scar). Clean water should be used for cleansing the skin and dry the area with sterile cotton before injection. ▪ Needles should not be recapped and should be disposed as per GOI guidelines.
Vaccine vial and diluent storage	Stored and transported between 2 c to 8 c and should be protected from sunlight.

National Immunization Schedule For Pregnant Woman

Vaccine	When to give	Max.age	Dose	Diluent	Route	Site
TT-1	**Early in pregnancy**	**------**	**0.5 ml.**	**No**	**Intramuscular**	**Upper arm.**
TT-2	**4 weeks after TT-1**	**----**	**0.5 ml.**	**No**	**Intramuscular**	**Upper arm**
TT-Booster	**If received TT doses in a pregnancy within the last 3 yrs.**		**0.5 ml.**	**No**	**Intramuscular**	**Upper Arm.**

For Infants

Vaccine	When to give	Max. age	Dose	Diluent	Route	Site
BCG	**At birth or as early as possible.**	**Till one year of age.**	**0.1ml (0.05ml until 1 month of age).**	**Sodium Chloride.**	**Intra-dermal**	**Left Upper Arm**
Hepatitis B-Birth dose	**At birth or as early as possible.**	**Within 24 Hours.**	**0.5ml.**	**No**	**Intra-muscular**	**Antero-lateral side of mid-thigh-Left.**
OPV-0	**At birth or as early as possible.**	**Within the first 15 days.**	**drops**	**No**	**Oral**	**--**

OPV 1, 2, & 3	At 6, 10, & 14 weeks.	Till one year of age.	drops	No	Oral	---
IPV (Inactivated polio vaccine)	At 14th week.	Up to 1 year of age	0.5ml	No	Intra-muscular.	Antero-lateral side of mid-thigh-Right.
Pentavalent 1, 2, & 3	At 6, 10 & 14 weeks.	Till 1 yr. of age.	0.5ml.	No	Intramuscular	Antero-lateral side of mid- thigh Left.
Measles-1st dose.	9—12 completed months.	Given till 5 years of age.	0.5ml.	Sterile Water.	Subcutaneous.	Right upper Arm.
Japanese Encephalitis 1st dose. For Latur & Beed.	9—12 completed months.	Till 15 years.	0.5ml.	Phosphate Buffer.	Subcutaneous	Left Upper Arm.
Vitamin A (1st dose)	At 9 completed months with Measles.	Till 5 years of age.	1ml. (One Lakh IU).	No	Oral.	---

For Children

Vaccine	When to give	Max. age	Dose	Diluent	Route	Site
DPT Booster-1st	16-24 months.	7 years.	0.5ml.	No	Intra-muscular	Antero-Lateral side of mid-thigh Left.
Measles-2nd Dose.	16-24 months	Till 5 years of age.	0.5ml.	Sterile Water.	Sub cutaneous	Left Upper Arm.
OPV Booster	16—24 months	Till 5 years of age.	2 Drops.	No	Oral	--
Japanese Encephalitis 2nd dose. For Latur & Beed.	16—24 Months.	--	0.5ml.	Phosphate Buffer.	Sub-cutaneous	Left Upper Arm.
Vitamin A 2nd –9th dose.	16 months, Then one dose every 6 months.	Till 5 years of age.	2ml. (2Lakh IU).	No	Oral	---

DPT-Booster-2	5—6 years.	7 years.	0.5ml.	No	Intra-Muscular.	Upper Arm Left.
TT	10 years & 16 years.		0.5ml.	No	Intra-Muscular.	Upper Arm.

Discussion & Conclusion-

Many of the population in India are poor & uneducated. They can't afford vaccines for their children in private hospitals. Government of India successfully run this Immunization Programme & also achieved specific targets.

- **Total eradication of Small Pox in 1977.**
- **Polio free certification in 2014.**
- **Maternal & Neonatal Tetanus Elimination in 2015.**

Following the massive outbreaks of JE in India-Vaccination campaigns were carried out in highest risk districts of the country from 2006-2009. Children between the age group of 1-15 years were vaccinated with a single dose of **SA14-14-2 Vaccine.**

This is JE vaccination coverage 2009 of Beed & Latur District.

Region	High Risk District	Target Children (01—15 years)	Children Covered	Coverage in Percentage.
Marathwada	Beed	581815	367886	63.23
	Latur	797452	220179	27.61

Following the mass campaign, the JE vaccination included in Routine Immunization or in National Immunization Schedule to cover the new cohort in Beed & Latur Districts. In 2013 JE2nd dose also included in NIS.Through JE Vaccination Government is trying total eradication of Japanese Encephalitis Disease from Latur & Beed of Marathwada as well as from India.

After all, Prevention is always better than cure.

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