A
STUDY PROJECT
ON

DATA COLLECTION ON CHILD VACCINES AT VARIOUS HOSPITALS IN CHIRALA

BY

II B.Sc. (M.Z.C.)

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Introduction :

Vaccine :

A Vaccine is a biological preparation that provides active acquired immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins, or one of its surface proteins. The agent stimulates the body's immune system to recognize and destroy any of the microorganisms associates with that agent that it may encounter in the future. Vaccines can be prophylactic (Eg. To prevent or ameliorate the effects of a future infection by a natural or "wild" pathogen), or therapeutic (e.g., vaccines against cancerare being investigated).

The administration of vaccines is called vaccination. Vaccination is the most effective method of preventing infectious disease, widespread immunity due to vaccination is largely responsible for the worldwide eradication of smallpox and the restriction of diseases such as polio, measles, and tetanus from much of the world. The effectiveness of vaccination has been widely studied and verified; for example, vaccines that have proven effective include the influenza vaccine, the HPV vaccine, and the chicken pox vaccine. The World Health Organisation (WHO) reports that licensed vaccines are currently available for twenty-five different preventable infections.

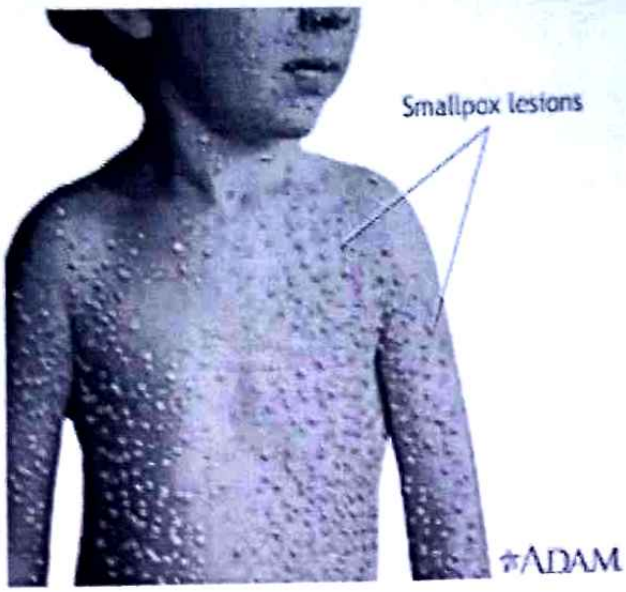
The terms vaccine and vaccination are derived from Variolae vaccinae (smallpox of the cow), the term devised by Edward Jenner to denote cowpox. He used in 1798 in the long title of his Inquiry into the Variolae vaccine known as the Cow Pox, in which he described the protective effect of cowpox against smallpox.

Types of Vaccines :

Live Vaccines	Inactivated or Killed Vaccines
Herpes Zoster Vaccine, this vaccine may be administered to patients 1. Short-term corticosteroid therapy (<14 days) with low to moderate doses (<20 mg/day of prednisone or equivalent). 2. Long-term treatment with low doses of systemic corticosteroids (<10 mg/day). 3. Therapy with methotrexate (<0.4 mg/kg/week. 4. Azathioprine (<3.0 mg/kg/dayP 5. 6-mercaptopurine (<1.5 mg/kg/day). 6. Intra-articular, bursal or tendon corticosteroids injections.	1. Seasonal Influenza, (The live attenuated vaccine should not be used. 2. 23-Valent Pneumococcal 3. TDaP booster vaccines should be considered.

IAPCOI Recommended Immunization schedule for persons aged 7 through 18 years (with Rage)

Age	7-10 years	11-12 years	13-18 years
Vaccine			
Tdap1	1 dose	1 dose	1 dose
HPV2		3 doses	Complete 3 dose
MMR	Complete 2 dose series		
Varicellas	Complete 2 dose series		
Hepatitis B	Complete 3 dose series		
Hepatitis A	Complete 2 dose series		
Typhoid	1 dose every 3 years		
Influenza Vaccine	One dose every year		
Japanese Enephalida vaccine	Catchup upto 15 years		



B.C.G. Vaccine :

Bacillus Calmette-Guerin (BCG) is a vaccine primarily used against tuberculosis (TB). In countries where tuberculosis or leprosy is common, one dose is recommended in healthy babies as close to the time of birth as possible. In areas where tuberculosis is not common, only children at high rik are typically immunized, while suspected cases of tuberculosis are individually tested for and treated. Adults who do not have tuberculosis and have not been previously immunized but are frequently exposed may be immunized as well. BCG also has some effectiveness against Buruli ulcer infection and other nontuberculosis mycobacteria infections. Additioonally it is sometimes used as part of the treatment of bladder cancer.

Rates of protection against tuberculosis infection vary widely and protection lasts up to twenty years. Among children it prevents about 20% form getting infected and among those who do get infected it protects half from developing disease. The vaccine is given by injection into the skin. Additional doses are not lsupported by evidence.

MMR Vaccine :

There are two published studies of MMR vaccine in paediatric RDs, both involving children with JIA.

- The first was a retrospective observational multicentre cohort study of 314 patients born between 1989 and 1996.
- Disease activity and medication use were compared during the 6 months before and 6 months after vaccination between patients vaccinated at the age of 8 and 9 years and those who had not been vaccinated by that age.

Oral Poliovirus Vaccine :

- Immunization coverage against poliomyelitis and the post-vaccination level of immunity have been assessed in 136 children with RD who had previously received oral Poliovirus vaccine.
- The production of children with RD who were seropositive to all three sertotypes was 75.8%.
- Although international guidelines state that live vaccines are contraindicated in patients receiving anti-TNF therapy, there is a report of one such patient who inadvertently received live polio vaccine without suffering from any infectious sequelae.

Diphtheria Vaccine :

- Only one published study of Diphtheria vaccine in paediatric RD till date.
- It included 55 children aged 6-15 years, who were in clinical and laboratory remission, including some who were still receiving NSAIDs or immunosuppressive maintenance therapy.
- The results showed that Diphtheria vaccination was immunogenic and safe in 95% of the children.

Varicella Zoster Virus Vaccine :

- A number of reports show that complicated varicella and herpes zoster are very common in patients with RD.
- However, varicella vaccination is contraindicated in patients taking glucocorticoids at prednisone-equivalent does of 2 mg/kg/day or 20 mg/day for >14 days.
- Athreya a Linsley suggested measuring serum antibody levels and immunizing seronegative patients with varicella zoster virus (VNZ) vaccine 3 weeks before starting the therapy.

Tetanus Vaccine :

- The only available data concerning paediatric RD was obtained from 40 children with SLE whom immunosuppressive therapy did not seem to interefere with the development of immunity.
- It has been suggested that immunosuppressive drugs given to mothers with a systematic autoimmune disease during pregnancy can affect the vaccination response of 17% of infants, although there does not seem to be any clear relationship between specific drug exposure and antibody response.

Hepatits Vaccine :

- The only published study of the immunogenicity and tolerability of HBV vaccination in Paediatric RD patients.
- All the study population except for one subject with systemic JIA developed a significant antibody response.

Childhood vaccination schedule :

Birth	Months	Months	Months	1 year	15-18 months	4-6 years	
Hep.B	1st dose	2nd dose (age 1-2 months	--	3rd dose (age 6-18 months)	--	--	--
RV	--	1st dose	2nd dose	3rd dose (in some cases)	--	--	--
DTaP	--	1st dose	2nd dose	3rd dose	--	4th dose	5th dose
Hib	--	1st dose	2nd dose	3rd dose (in some cases)	Booster dose (age 12-15)	--	--
PCV	--	1st dose	2nd dose	3rd dose	4th dose (age 12-15 months	--	--
IPV	--	1st dose	2nd dose	3rd dose (age 6-18 months)	--	--	4th dose
Influenza	--	--	--	Yearly vaccination (seasonally as appropriate)	Yearly vaccination (seasonally as appropriate)	Yearly vaccination (seasonally as appropriate)	Yearly vaccination (seasonally as appropriate)
MMR	--	--	--	--	1st dose (age 12-15 months	--	2nd dose

- **HepB** protects against hepatitis B (infaction of the liver). HepB is given in three shots. The first shot is given at the time of birth. Most states require HepB vaccination for a child to enter school.
- **RV** protects against rotavirus, a major cause or diarrhea. RV is given in two or three doses, depending on the vaccine used.
- **DTaP** protects against diphtheria, tetanus, and pertusis (whooping cough). It requires five doses during infancy and childhood. DTaP boosters are then given during adolescence and adulthood.
- **Hib** protects against Haemophilus influenza b. This infection used to be a leading cause of bacterial meningitis. Hib vaccination is given in three or four doses.
- **PCV** protects against pneumococcal disease, which includes pneumonia. PCF is given in a series of four doses.
- **IPV** protects against polio and is given in four doses.
- **Influenza (flu)** protects against the flu. This is a seasonal vaccine that is given yearly. Flu shot can be given to your child each year, starting at age 6 months. Flu season can run from September through May.
- **MMR** protects against measles, mumps, and rubella (German measles). MMR is given in two doses. The first dose is recommended for infants between 12 and 15 months. The second dose is usually given between ages 4 and 6 years. However, it can be given as soon as 28 days after the first dose.

Data collection in various Hospitals **:Ravikumar Hospital, Chirala**

Drug	2014	2015	2016	2017	2018
HepB	25%	--	--	--	--
MMR	--	50%	--	45%	60%
BCG	25%	--	50%	--	25%
DTaP	50%	23%	60%	--	30%
PCV	25%	32%	62%	--	40%

Dr. Area Hospital (Govt. Hospital), Chirala.

Drug	Years				
	2014	2015	2016	2017	2018
HepB	22%	--	32%	--	37%
MMR	28%	--	31%	--	33%
BCG	--	52%	--	28%	--
DTaP	--	23%	48%	38%	--
PCV	25%	--	51%	--	38%