The Expanded Program On Immunization (EPI)

Immunization

Immunization is the a process where by a person is made immune or resistant to an infection, typically by administration of vaccines

Immunization is a proven tool for controlling and elimination life-threatening infectious disease

The Expanded Program Of Immunization (EPI)

The Expanded Programme on Immunization (EPI) was established in 1974 through a World Health Assembly resolution to build on the success of the global smallpox eradication programme, and to ensure that all children in all countries benefited from life-saving vaccines

- # Objectives

  The expanded immunization program, the who's initiative to improve immunization coverage, focuses on the following four items:4
- **Standardizing immunization schedules**
- **Promoting safe injection technologies**
- **Improving the stocking and availability of vaccines**
- **Protecting vaccines' potency through cold chain management**
-

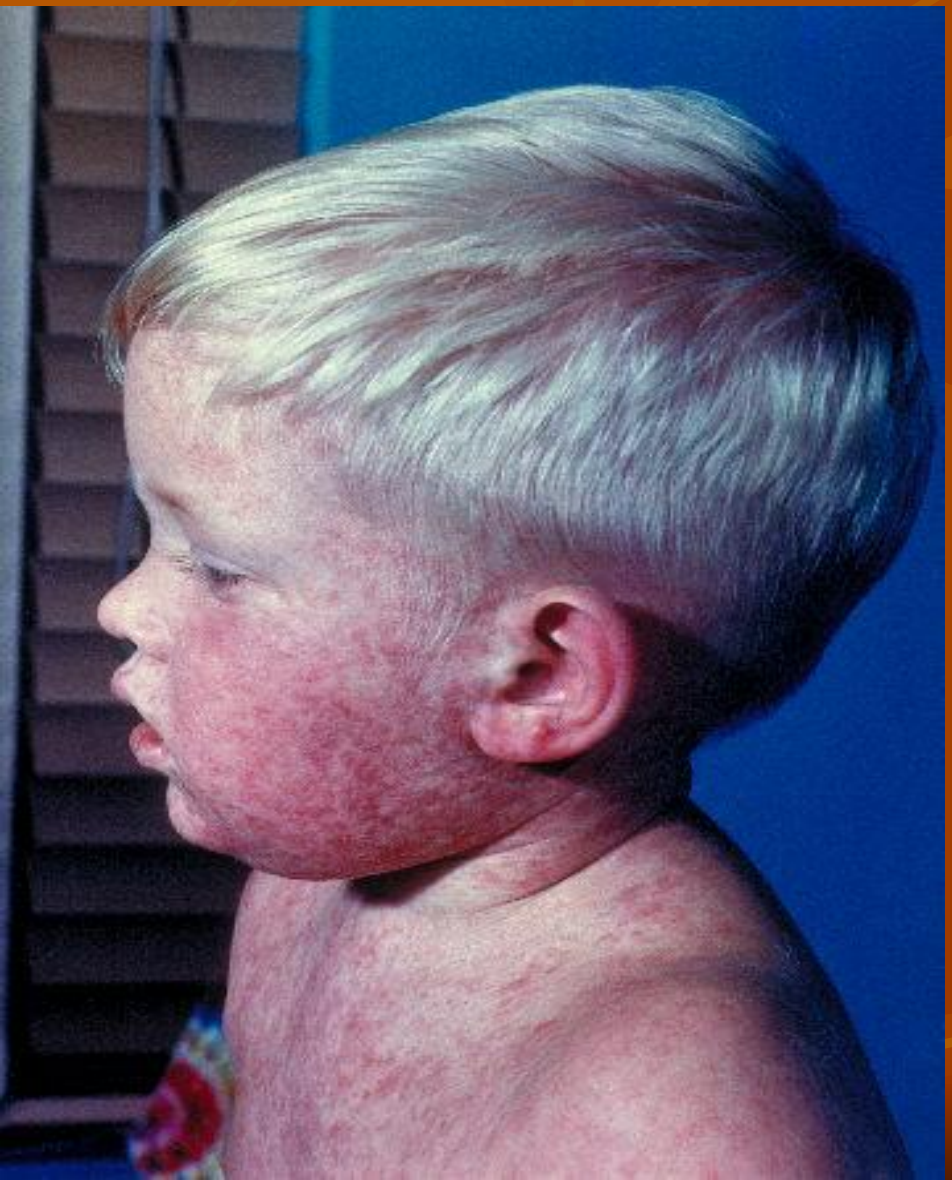
The objectives of EPI:

1. To increase coverage of immunization for eligible children.

2. To reduce the incidence of immunizable diseases among children below five years of age.

Eradication of polio to maintain polio free status.

Elimination of measles.



Reduce Incidence of

hepatitis B

among under five.

Elimination of Neonatal Tetanus .

Maintain zero level of diphtheria.

Prevention of severe forms of TB (TB meningitis &military TB).

12 year old girl with TB meningitis

reduce the incidence of whooping cough

Reduce the incidence of Bacteria Meningitis due to haemophelus influenza

3. Promoting safe injection techniques
4. Improve the stocking and availability of vaccines
5.Protecting vaccine potency through cold chain management
6.To prepare for introduction of new vaccines

The immune system

Immunity: Ability of an organism to recognize and defend itself against *specific* pathogens or .antigens

Immune Response: Involves production of antibodies and generation of specialized .lymphocytes against specific antigens

Antigen: Molecules from a pathogen or foreign organism that provoke a specific immune .response

-:Types of Immunity

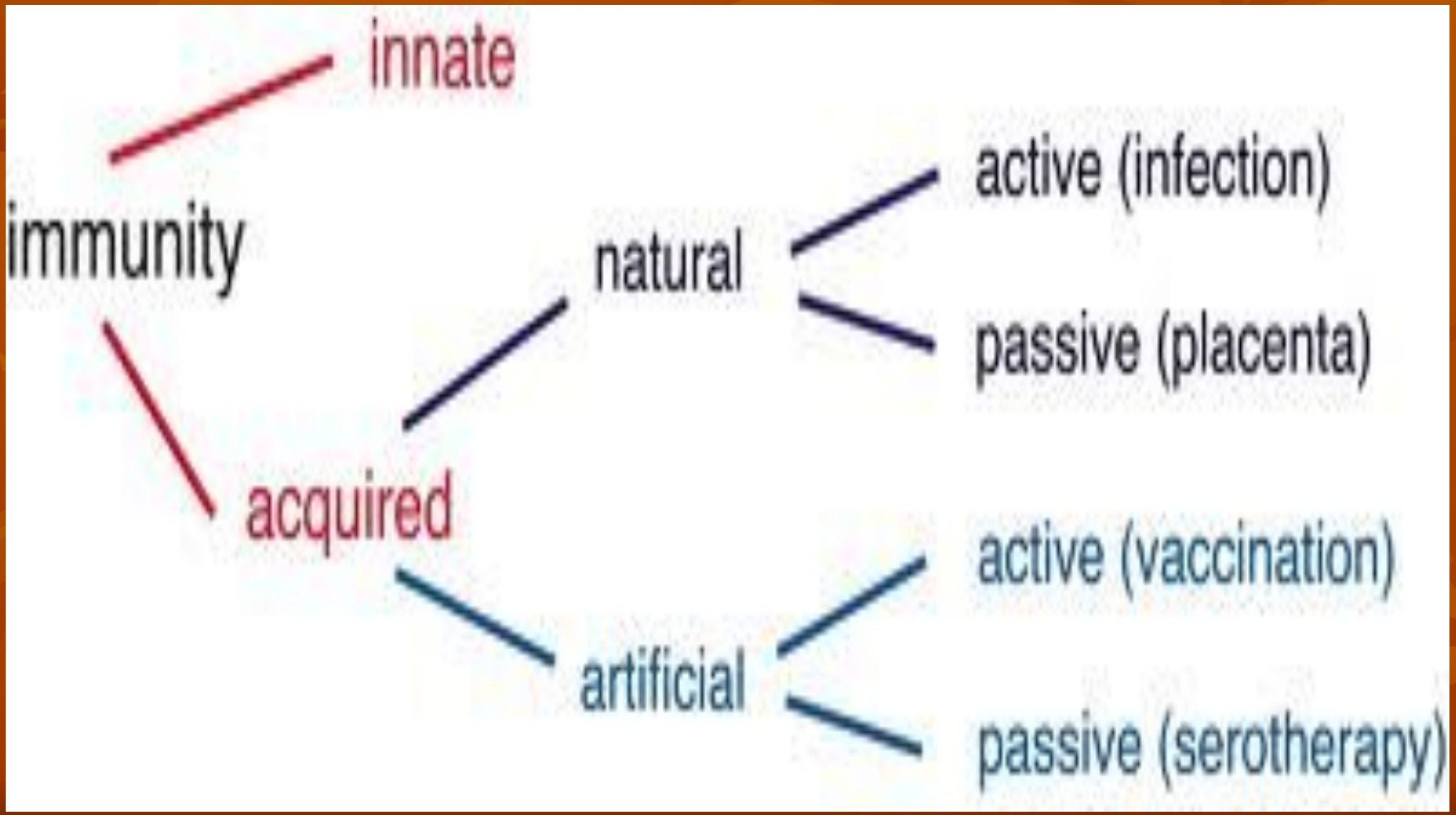
- **Innate or natural Immunity:**

.Immunity an organism is born with

- **Acquired Immunity:**

.Immunity that an organism *develops* during lifetime

.May be acquired naturally or artificially


innate
immunity
natural
active (infection)
passive (placenta)
acquired
active (vaccination)
artificial
passive (serotherapy)

Types of Acquired Immunity

I. Naturally Acquired Immunity: Obtained in the .course of daily life

-:Two types

:A. Naturally Acquired Active Immunity

.*Antigens* or pathogens enter body naturally

.Body generates an immune response to antigens

.

Types of Acquired Immunity

:B. Naturally Acquired Passive Immunity

Antibodies **pass from mother to fetus via placenta or**
. breast feeding

.No immune response to antigens

.Immunity is usually short-lived (weeks to months)

.Protection until child's immune system develops

Types of Acquired Immunity (Continued)

II. Artificially Acquired Immunity: Obtained by .receiving a vaccine or antibodies

:Artificially Acquired Active Immunity .1

.Antigens are introduced in vaccines (immunization)

.Body generates an immune response to antigens

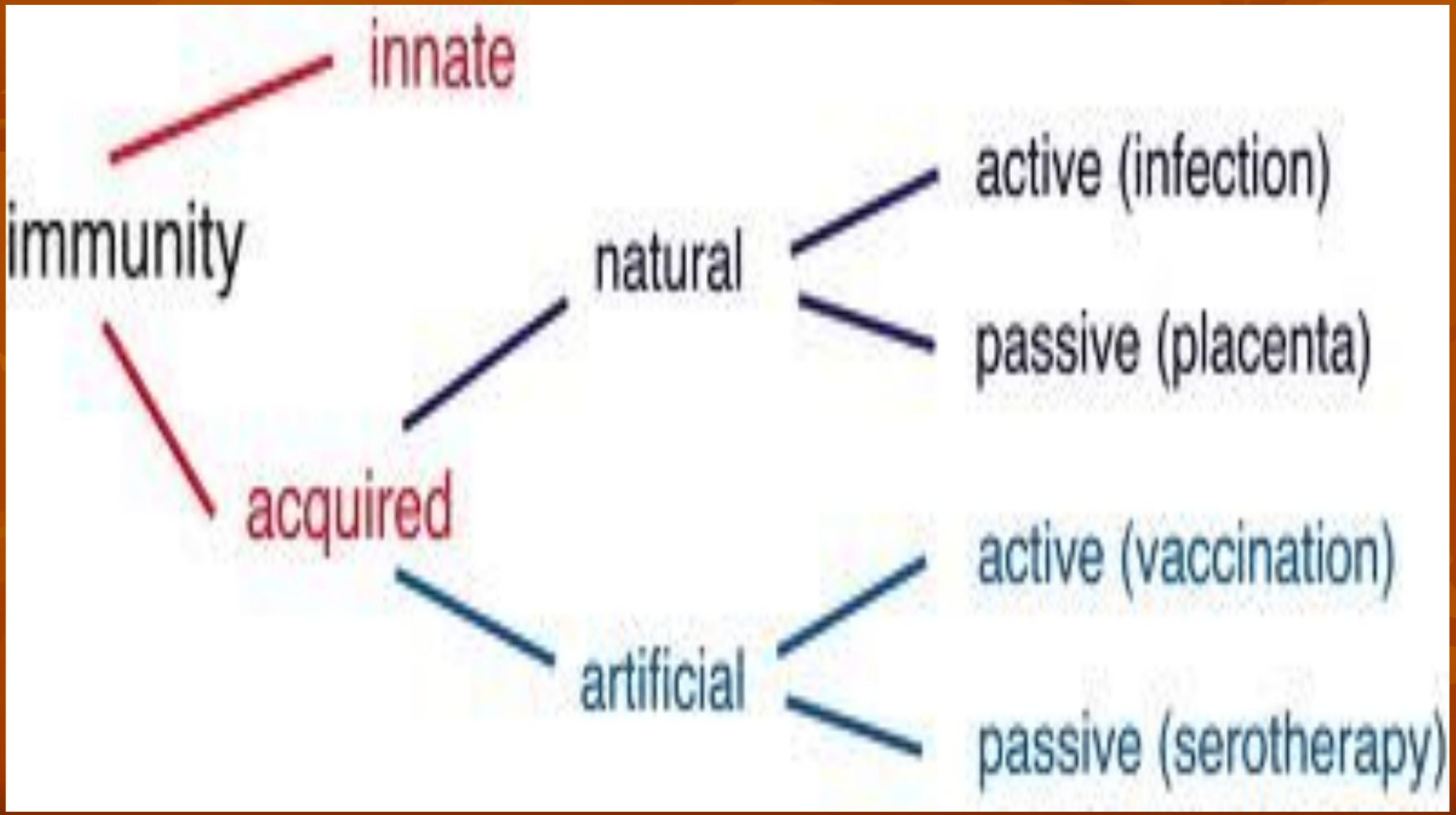
Types of Acquired Immunity (Continued)

.

:**Artificially Acquired Passive Immunity .2**

.Antibodies are introduced into body by injection
.Snake antivenom injection from horses or rabbits

.Immunity is short lived (half life three weeks)
.Host immune system does not respond to antigens


innate
immunity
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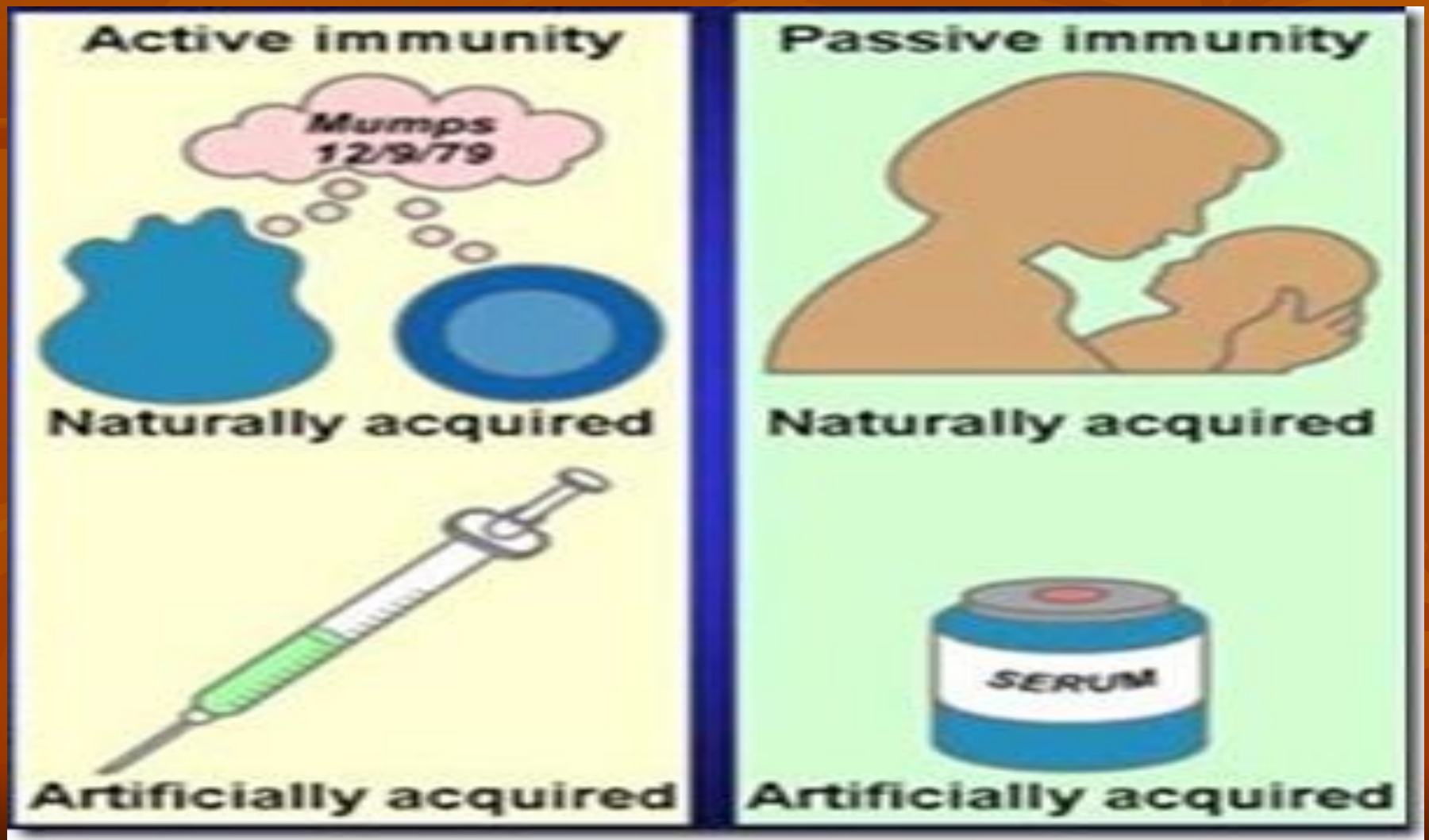

Active immunity
Mumps
12/9/79
Naturally acquired
Artificially acquired
Passive immunity
Naturally acquired
SERUM
Artificially acquired

?What is a Vaccine

- A vaccine is a non-pathogenic antigen that mimics a particular pathogen in order to elicit an immune response as if that actual pathogen were in the body.

Types of vaccines

1. **Live, Attenuated Vaccines**

   -Viral such as measles, mumps, rubella, oral polio and rota virus

   -Bacterial such as BCG

2. Inactivated Vaccines

Types of vaccines

2. Inactivated Vaccines

A. Whole cell vaccine

-Viral

-Bacterial

B. Fractional

1-Protein based

Toxoid

Subunit

2-Polysaccharide based

Pure

conjugate

Types of vaccines

2. Inactivated Vaccines

A. **Whole cell vaccine**

-Viral such as Hepatitis A, polio and rabies

-Bacterial such as Pertussis

Types of vaccines

2. Inactivated Vaccines

A. Whole cell vaccine

-Viral

-Bacterial

B. Fractional

1-Protein based

Toxoid such as diphtheria, tetanus

Subunit such as hepatitis B

2-Polysaccharide based

Pure such as pneumococcal and meningococcal vaccines

conjugate such as Haemophilus influenzae type B vaccine.

	Attenuated vaccine	Inactivated Vaccines
Vaccine dose	Low	High
Antibody persistence	Long	Short
Booster needed	Infrequently	Frequently

Types of vaccines

1. **Live, Attenuated Vaccines**

Live, attenuated vaccines contain a version of the living microbe that has been weakened in the lab so it can't .cause disease

They elicit strong immune system response and often confer .lifelong immunity with only one or two doses

Types of vaccines

Live, Attenuated Vaccines

- live, attenuated vaccines usually need to be **refrigerated** to stay potent.
- Live, attenuated vaccines are relatively **easy to create for certain viruses**. Viruses are simple microbes containing a small number of genes,
- Live, attenuated vaccines are more **difficult to create for bacteria**. Bacteria have thousands of genes and thus are much harder to
- people who have damaged or weakened immune systems, such as people who undergone chemotherapy or **have HIV, can not be given live vaccines.**

Types of vaccines

Inactivated Vaccines

- Scientists produce inactivated vaccines by killing the disease-causing microbe with chemicals, heat, or radiation.

- Inactivated vaccines usually **don't require refrigeration**, and they can be easily stored and transported in a freeze-dried form, which makes them accessible to people in developing countries.

Types of vaccines

Inactivated Vaccines

- Most inactivated vaccines, however, stimulate a weaker immune system response than do live vaccines.

- So it would likely take several additional doses, or booster shots, to maintain a person's immunity.

Types of vaccines

Protein based

Subunit Vaccines

Instead of the entire microbe, subunit vaccines include only the antigens that best stimulate the immune system.

This make the chances of **adverse reactions** to the vaccine are lower.

Types of vaccines

:subunit vaccines can be made in one of two ways

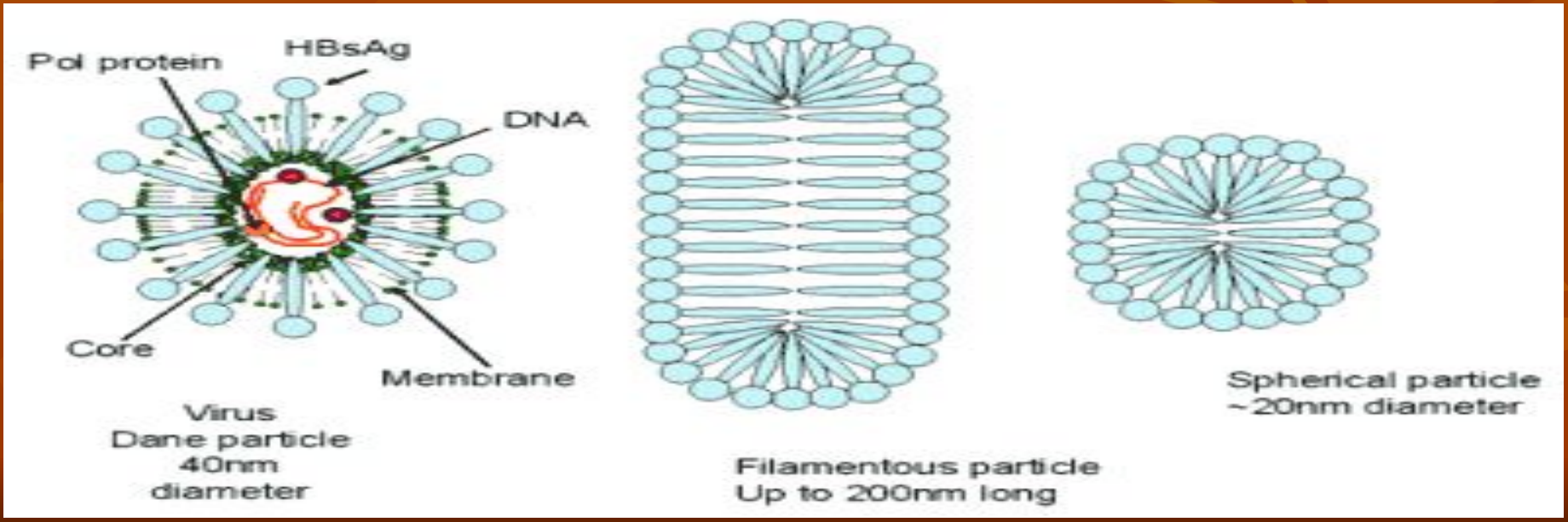
1. They can **grow the microbe** in the laboratory and then use **chemicals to break it apart** and gather the important antigens.

They can **manufacture the antigen** molecules from the microbe.2 .using **recombinant DNA technology**

Vaccines produced this way are called “recombinant subunit ..vaccines.” such as hepatitis B virus vaccine

Types of vaccines

Scientists inserted hepatitis B genes that code for important antigens into common baker's yeast. The yeast then produced the antigens, which the scientists collected use in the vaccine



Types of vaccines

Protein based Vaccines

Toxoid Vaccines

These vaccines are used when a bacterial toxin is the .main cause of illness

.Toxins are inactivate by treating them with **formalin**

Vaccines against diphtheria and tetanus are examples of .toxoid vaccines

Types of vaccines

Pure polysaccharides. **Vaccines**

Some bacterium possess an outer coating of sugar molecules called .polysaccharides

vaccine is made up of long chain of sugar molecules

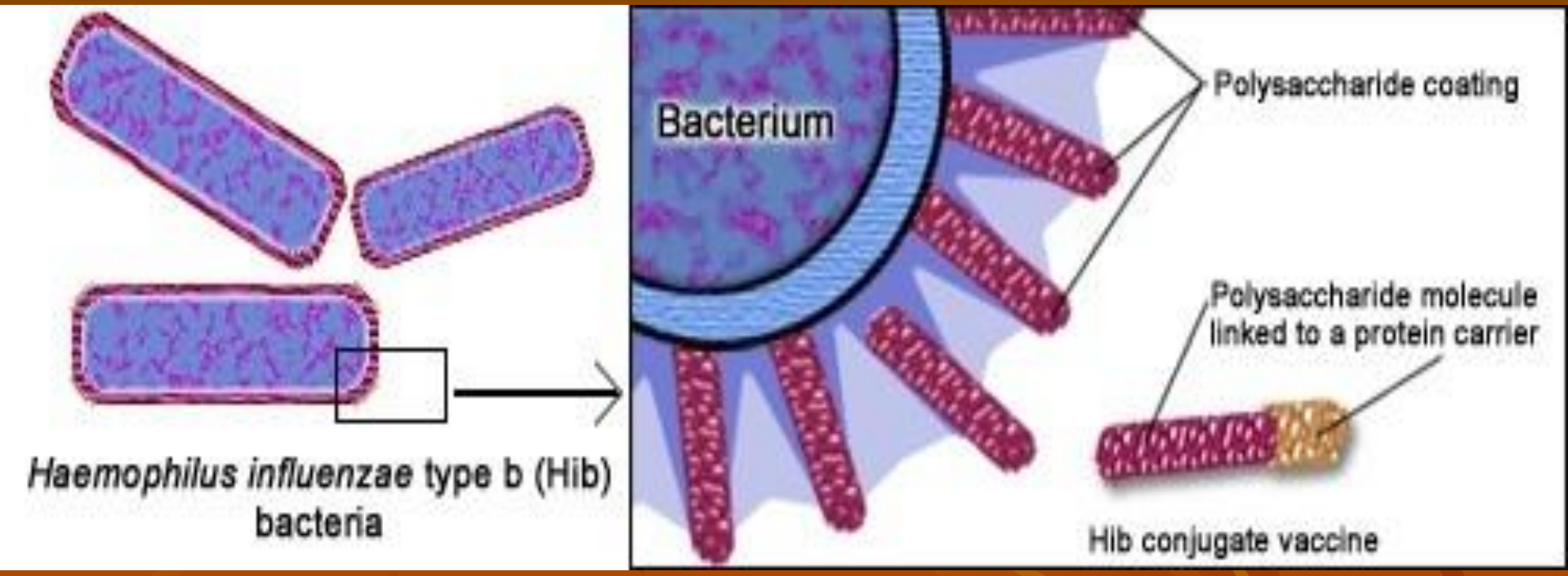
infant's immune system can not recognize to the polysaccharides.

Types of vaccines

Conjugate Vaccines

Some bacterium possess an outer coating of sugar molecules called .polysaccharides

When making a conjugate vaccine, scientists link antigens or toxoids from a microbe that an **infant's immune system can recognize to the .polysaccharides**



- The vaccine that protects against Haemophilus influenzae type B (Hib) is a conjugate vaccine.
- It is made by joining a piece of the polysaccharide capsule that surrounds the Hib bacterium to a protein carrier.
- This joining process is called conjugation.

IMMUNIZATION SCHEDULE IN SUDAN

Under one year

Vaccine	SCHEDULE
BCG	At birth
OPV0	At birth
Pentavalente 1 (DPT + HB + H),OPV1	6 weeks
, Pentavalente DPT + HB + Hib) ,OPV_2	10 weeks
Pentavalente (DPT + HB + Hib),OPV_3	14 weeks
Measles	Nine month

كرت تطعيم لكل طفل سوداني

جمهورية السودان

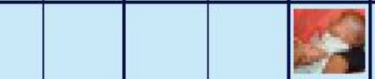
EPI

MOH

وزارة الصحة الاتحادية

برنامج التحصين الموسع

جدول تطعيمات الأطفال:

العمر / اللقاح	عند الولادة	٦ أسابيع	١٠ أسابيع	١٤ اسبوع	٩ شهور	١٨ شهر
التهاب الكبد (ب) الصفرية						
السل جرعة واحدة						
الشلل ٤ جرعات						
الخماسي ٣ جرعات						
الروتا جرعتان						
الحصبة جرعتان						

عزيزتي الأم:

- شكرا لك لزيارتك للمركز وحرصك على تطعيم أطفالك.
- راجعي مع العامل الصحي مواعيد ونوع ومكان الجرعات القادمة.
- احرصي على إكمال الجرعات المقررة لك ولطفلك.
- تعرّفي على الآثار الجانبية المحتملة وكيفية التعامل معها.
- احرصي على الاحتفاظ بالكرت واحضاره عند كل زيارة لك أو لطفلك.

تطعيمات الطفل:

نوع اللقاح	الجرعة	تاريخ الجرعة	العمر
التهاب الكبد (ب) الصفرية			
الحمى صفر (السل)			
شلل الأطفال	الجرعة الصفرية		
	الأولى		
	الثانية		
	الثالثة		
الخماسي	الأولى		
	الثانية		
	الثالثة		
الروتا	الأولى		
	الثانية		
الحصبة	الأولى		
	الثانية		

لقاح التهاب الكبد الفيروسي (ب) الصفرية: يجب إعطاء الجرعة الصفرية خلال ال ٢٤ ساعة الأولى من ولادة الطفل وحتى أسبوع فقط.

لقاح الشلل: تُعطى جرعة الشلل الصفرية عند الولادة حتى أسبوعين فقط.

لقاح الروتا: يجب إعطاء الجرعة الأولى خلال الفترة من ٦ إلى ١٤ أسبوع فقط من ولادة الطفل على ألا يتجاوز عمر الطفل عند الجرعة الثانية ٨ أشهر.

مواعيد الجرعات التالية:

نوع الجرعة	التاريخ

هذا الكرت وثيقة هامة يجب الحفاظ عليها

كرت التطعيم

الرقم المتسلسل: .....

الولاية: .....

المحلية: .....

اسم المؤسسة الصحية: .....

نوع المؤسسة الصحية:

ثابت ☐ فرعي ☐ جوال ☐

اسم الطفل: .....

النوع: ذكر ☐ انثى ☐

تاريخ اول زيارة: .....

عمر الطفل: .....

تاريخ الميلاد: .....

السكن: .....

تلفون المركز / الفني إن وجد: .....

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IMMUNIZATION SCHEDULE IN SUDAN

Women in Child bearing age

DOSE	SCHEDULE
TT1	Any time at first contact or as early as possible during pregnancy
TT2	One month after the first visit(TT1)
TT3	Six months after TT2 or during subsequent pregnancy
TT4	One year after TT3or during subsequent pregnancy
TT5	One year after TT4or during subsequent pregnancy

كرت تطعيم لكل إمرأة سودانية

جمهورية السودان

EPI

سوداني sudani

جدول تطعيمات التتانوس للنساء في عمر الإنجاب :

الجرعة	وقت التطعيم
الاولي (اساسية)	للحوامل عند أول زيارة لموقع التطعيم بعد معرفة الحمل، للفتيات في أقرب وقت عند إكمال عمر ١٥ سنة (بمفردها لاتعطي حماية)
الثانية (اساسية)	بعد شهر علي الاقل من الجرعة الاولي (تعطي حماية لمدة ثلاث سنوات)
الثالثة (منشطة)	بعد ٦ أشهر علي الاقل من الجرعة الثانية (تعطي حماية لمدة خمس سنوات)
الرابعة (منشطة)	بعد سنة علي الاقل من الجرعة الثالثة (تعطي حماية لمدة عشر سنوات)
الخامسة (منشطة)	بعد سنة علي الاقل من الجرعة الرابعة (تعطي حماية مدي الحياة)

(احرصي علي إكمال جميع الجرعات)

جرعات التطعيم	التاريخ
الاولى اساسية	
الثانية اساسية	
منشطة اولى	
منشطة ثانية	
منشطة ثالثة	

مواعيد الجرعات القادمة :

الجرعة الثانية	الجرعة الثالثة	الجرعة الرابعة	الجرعة الخامسة

(التطعيم مجانا بكل الوحدات الصحية)

جدول تطعيمات التتانوس
للنساء في عمر الإنجاب
(١٥-٤٩ سنة)

الرقم المتسلسل:.....

الولاية:.....

المحلية: :.....

اسم المؤسسة الصحية:.....

نوع المؤسسة الصحية:

ثابت ☐ فرعى ☐ جوال ☐

اسم المستفيد :.....

العمر :.....

عنوان السكن :.....

حامل ☐ غير حامل ☐

تلفون المركز / الفنى إن وجد .....

برنامج التحصين الإتحادى : ص.ب : الخرطوم - هاتف : ٧٩٣٣٣٤/٣٢ ٨٣ (١)٢٤٩+ - فاكس :٨٣٧٩٣٣٢١/٣١ (١)٢٤٩+

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episud@sudanmail.net

سوداني sudani

	Diseases	Type of vaccine	Dose	Rout of administration
BCG-1	TB	Live attenuated, variant	0.05ml	ID injection in left forearm
HBV-2	Hepatitis B	Recombinant, yeast derived HBs antigen	ml 0.5	IM thigh

	Diseases	Type of vaccine	Dose	Rout of administration
3-OPV	Polio	Live attenuated	2 drops	oral

Pentavalent Vaccine

	Diseases	Type of vaccine	Dose	Rout of administration
HiB	Hib disease	polysaccharide conjugate	0.5 ml	IM thigh
HBV	Hepatitis B	Recombinant, yeast derived HBs antigen		
DPT	Diphtheria Tetanus Whooping cough	Toxoid (D) Toxoid (T) Killed pertussis (P)		

	The disease	Type of the vaccine	Dose	Mode of administration
Measles		Live attenuated	0.5 ml	Subcutaneous

BCG *(At birth)*

- Live attenuated variant.
- 0.05ml .
- ID injection in left forearm

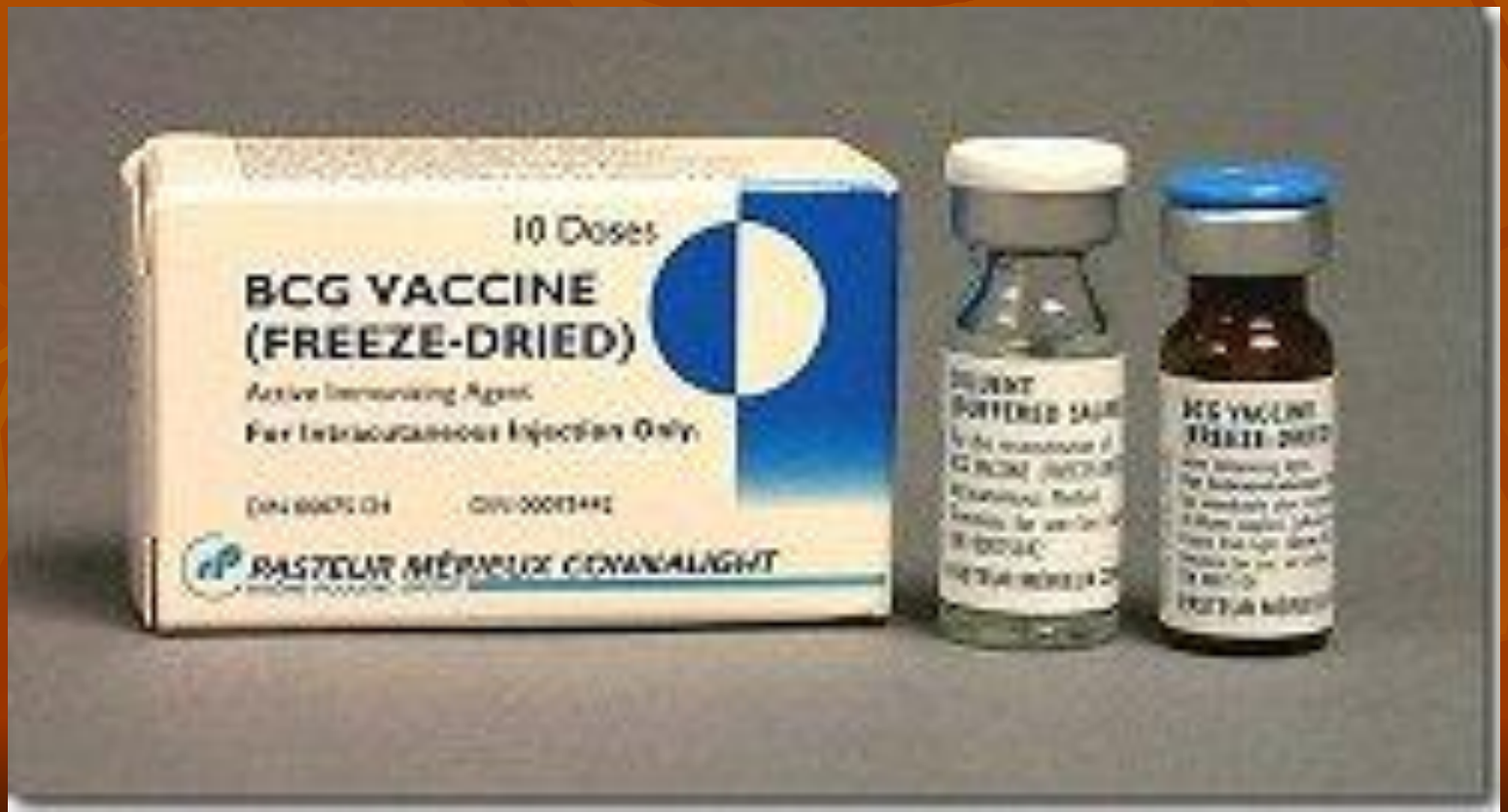
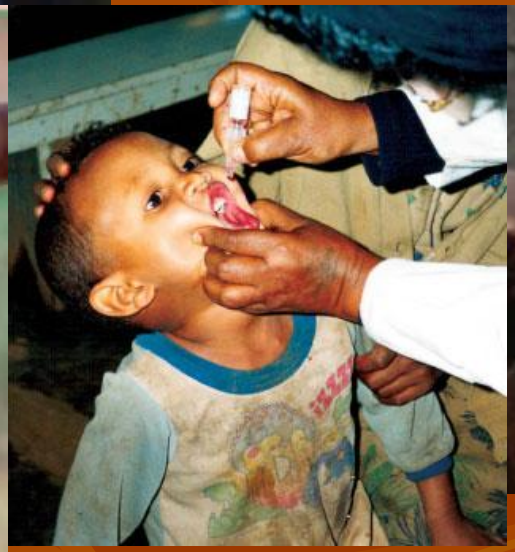


Fig. 1

Intradermal injection of BCG vaccine

Photo courtesy of the author

BCG Interdemal Vaccination



:local reactions

.swelling, redness, or pain at the injection site

Thank You