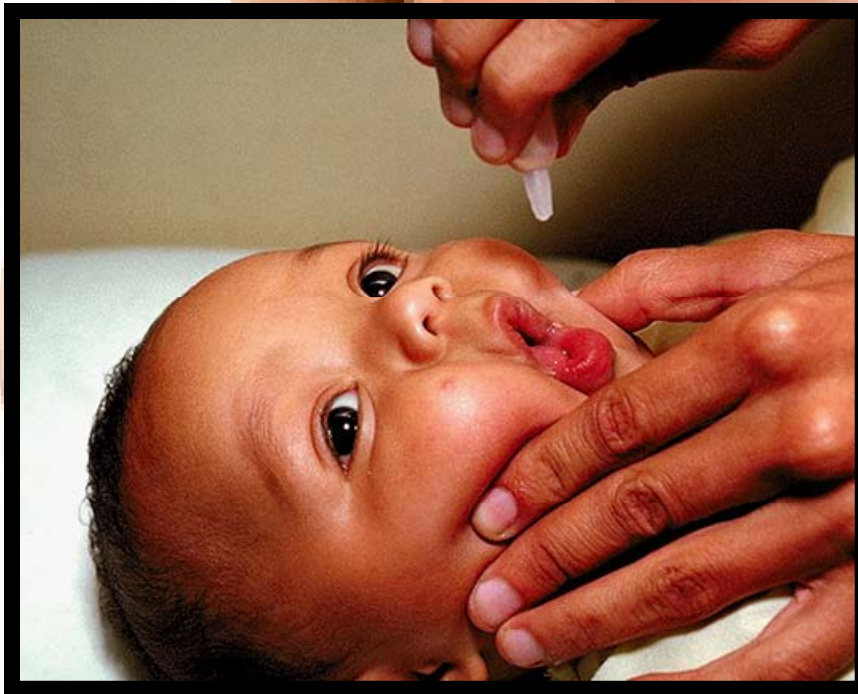




# Adverse Events Following Immunization (AEFI)

State Institute of Health & Family Welfare,  
Jaipur

# Adverse Events Following Immunization (AEFI)





- No vaccine is 100% safe and without any risks.
- Prepare parents for side effects



# What is an AEFI ?

A medical event following immunization, that

- Causes concern
- Ranges from mild side effects to life-threatening, but rare, illnesses



# Dealing With Rumors

- **P**redict
- **P**repare
- **P**rompt Positive Response
- **P**rofessional support
- **P**olitical support

# Types of AEFIs

1. Programmatic error
2. Vaccine reaction
  - Local Reaction
  - Systematic Reaction
  - Allergic Reaction
3. Coincidence
4. Injection reaction
5. Unknown

# 1. Programmatic Error

Error in vaccine-

- a. Selection,
- b. Storage,
- c. Preparation,
- d. Handling, or




BCG injection given sub-cutaneously instead of Intradermally: local lymphadenitis and abscess



# Types of Programmatic Errors

<b>Programmatic Errors</b>	<b>Possible Adverse event that may occur</b>
<b>Non-sterile injection:</b>	<ul style="list-style-type: none"><li>• Infection -local abscess sepsis, toxic shock syndrome or death.</li></ul>
<b>Re-use of disposable syringe and needle</b>	<ul style="list-style-type: none"><li>• Transmission of blood-borne infections such as Hep B, HIV, Hep C</li></ul>

<b>Programmatic Errors</b>	<b>Possible Adverse events that may occur</b> 
<b>Reconstitution</b> <ul style="list-style-type: none"> <li>• Reconstitution with incorrect diluents</li> <li>• Drug substituted for vaccine diluents</li> <li>• Inadequate shaking for T- series vaccines</li> </ul>	<ul style="list-style-type: none"> <li>• Vaccine ineffective</li> <li>• Negative effect of drug, e.g. insulin causing death</li> <li>• Local abscess</li> </ul>
<b>Incorrect Injection site</b> <ul style="list-style-type: none"> <li>• BCG given sub-cutaneously</li> <li>• DPT/DT/TT given superficially</li> <li>• Injection into buttocks</li> </ul>	<ul style="list-style-type: none"> <li>• Local reaction or abscess</li> <li>• Local reaction or abscess</li> <li>• Sciatic nerve damage</li> </ul>
<b>Poor transportation/storage</b>	<ul style="list-style-type: none"> <li>• Local reaction from frozen vaccine</li> <li>• Vaccine ineffective</li> </ul>
<b>Contraindications ignored</b>	<ul style="list-style-type: none"> <li>• Avoidable serious</li> </ul>

## 2. Vaccine Reaction

Rare event caused by inherent properties of vaccine, not by Programmatic error.



Child has an allergic reaction to vaccine.

# True AEFIs

## Mild Reactions

- Common
  - Pain & swelling
  - Fever
  - Irritability & malaise
- Self-limiting, hardly requiring even symptomatic treatment
- Important to reassure parents

## Severe Reactions

- Rare
  - Include seizures,
  - Thrombocytopenia, hypotonic hypo-responsive episodes,
  - Persistent inconsolable screaming
- Largely self-limiting and do not lead to long-term problems
- Anaphylaxis, while potentially fatal, is treatable without any long-term effect

## 3. Coincidence

- Event not caused by the vaccine (a chance association)



Child shows signs of measles a few days/ weeks after DPT vaccine is given.

## 4. Injection Reaction

- Event is caused by pain from (or fear about) the injection itself.



Child screams and faints at the sight of the needle.

## 5. Unknown

- Cause of event cannot be determined.



Child develops respiratory infection or fever a few days after Injection.

# Elicit Past History of AEFIs



Ask parents about history of any adverse reaction following earlier vaccinations, such as convulsion after DPT vaccination.



# How to Minimize AEFIs?

1. Use separate site for each vaccine.

Measles  
(subcutaneous)

OPV  
(oral)

Vit A (oral)  
(oral)

BCG  
(intradermal)

Hepatitis B  
(intramuscular)

DPT  
(intramuscular)

# Minimizing AEFIs



- **Instruction for the health workers**
  - Selection of separate site
  - One syringe & one needle/AD syringe
  - Ensure sterilization
  - Reconstitute vaccines only with diluents
  - Use Reconstituted vaccines within 4 hours
  - Keep diluents of BCG and measles vaccine separate
  - Do not keep needles in the rubber cap (stopper) of vaccine vials.
  - Do not store other drugs or substances in the ILR or deep freezer.
  
- **What to do if an AEFI Occurs?**
  - immediately inform MO and accompany if needed.



# What to Report?

- All abscesses
- Serious events requiring hospitalizations
- Deaths
- Clustering of Cases



# What not to Report?

Minor reactions due to vaccines		
Mild vaccine reactions	Treatment	When to report
Local reaction (pain, swelling, redness)	<ul style="list-style-type: none"> <li>• Cold cloth at injection site</li> <li>• Give Paracetamol</li> </ul>	<ul style="list-style-type: none"> <li>• In case of an abscess</li> </ul>
Fever > 38.5°C	<ul style="list-style-type: none"> <li>• Give extra fluids</li> <li>• Wear cool clothing</li> <li>• Give tepid sponging</li> <li>• Give Paracetamol</li> </ul>	<ul style="list-style-type: none"> <li>• When accompanied by other symptoms</li> </ul>
Irritability, malaise and systemic Symptoms	<ul style="list-style-type: none"> <li>• Give extra fluids</li> <li>• Give Paracetamol</li> </ul>	<ul style="list-style-type: none"> <li>• When severe or unusual</li> </ul>

# Programmatic Errors Causing AEFIs



Programmatic Errors	Possible Adverse event that may occur
<p><b><i>Non-Sterile injection:</i></b></p> <ul style="list-style-type: none"> <li>• Improperly sterilizing syringe</li> <li>• Contaminated vaccine or diluents</li> <li>• Re-use of reconstituted vaccine at subsequent sessions</li> <li>• Wiping the needle with a swab</li> <li>• Administering injection over clothes</li> </ul>	<ul style="list-style-type: none"> <li>• Infection such as local abscess at site of injection sepsis, toxic shock syndrome or death.</li> </ul>
<p><b><i>Re-use of disposable syringe and needle</i></b></p>	<ul style="list-style-type: none"> <li>• Transmission of blood-borne infections such as Heb B, HIV, Hep C</li> </ul>
<p><b><i>Reconstitution Error/ Wrong vaccine preparation</i></b></p> <ul style="list-style-type: none"> <li>• Reconstitution with incorrect diluents</li> <li>• Drug substituted for vaccine diluents</li> <li>• Inadequate shaking for T-series vaccines</li> </ul>	<ul style="list-style-type: none"> <li>• Vaccine ineffective</li> <li>• Negative effect of drug, e.g. insulin causing death</li> <li>• Local abscess</li> </ul>

Programmatic Errors	Possible Adverse event that may occur
Injection at incorrect site <ul style="list-style-type: none"> <li>• BCG given sub-cutaneously</li> <li>• DPT/DT/TT given superficially</li> <li>• Injection into buttocks</li> </ul>	<ul style="list-style-type: none"> <li>• Local reaction or abscess</li> <li>• Local reaction or abscess</li> <li>• Sciatic nerve damage</li> </ul>
Vaccine transportation/storage	<ul style="list-style-type: none"> <li>• Local reaction from frozen vaccine</li> <li>• Vaccine ineffective</li> </ul>
Contraindications ignored	<ul style="list-style-type: none"> <li>• Avoidable serious reaction</li> </ul>

# Minor Reactions due to Vaccines



(normal and not required to be reported)

Mild vaccine reactions	Treatment	When to report
Local reaction (pain, swelling, redness)	<ul style="list-style-type: none"><li>• Cold cloth at injection site</li><li>• Give Paracetamol</li></ul>	<ul style="list-style-type: none"><li>• In case of an abscess</li></ul>
Fever > 38.5°C	<ul style="list-style-type: none"><li>• Give extra fluids</li><li>• Wear cool clothing</li><li>• Give tepid sponging</li><li>• Give Paracetamol</li></ul>	<ul style="list-style-type: none"><li>• When accompanied by other symptoms</li></ul>
Irritability, malaise and systemic symptoms	<ul style="list-style-type: none"><li>• Give extra fluids</li><li>• Give Paracetamol</li></ul>	<ul style="list-style-type: none"><li>• When severe or unusual</li></ul>

# Vaccine Preventable Disease Outbreak

- During outbreak Ensure the following:-
  - Adequate supply
  - Adequate staff
- **Pertusis:-** Prophylactic antibiotic (erythromycin or ampicillin) for 10 days and booster dose of DPT or DT
- **Measles:-** Ring immunization within 2 days of exposure
- **Polio:-** Ring immunization with use of Oral (Sabin) Polio vaccine



**In case of diphtheria outbreak, if the epidemiological situation demands;**

- Mass immunization- Entire adult population
- Mass immunization in schools and preschool institutions to ensure-
  - All children are protected against the disease
  - Completion of primary series in non-immunized or incompletely immunized children
  - Booster dose for fully immunized children if the last injection was given >five years ago.



# Thank You

For more details log on to  
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