Adverse Events Following Immunization (AEFI)

State Institute of Health & Family Welfare, Jaipur
Adverse Events Following Immunization (AEFI)
Vaccine…. Is it really safe?

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

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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

• Predict
• Prepare
• Prompt Positive Response
• Professional support
• Political support

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Types of AEFI

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  
e. Administration

BCG injection given sub-cutaneously instead of Intradermally: local lymphadenitis and abscess
## Types of Programmatic Errors

<table>
<thead>
<tr>
<th>Programmatic Errors</th>
<th>Possible Adverse event that may occur</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-sterile injection</strong></td>
<td>• Infection - local abscess, sepsis, toxic shock syndrome or death.</td>
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<tr>
<td>• Improperly sterilizing syringe</td>
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<tr>
<td>• Contaminated vaccine or diluents</td>
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<tr>
<td>• Re-use of reconstituted vaccine at subsequent sessions</td>
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<tr>
<td>• Wiping the needle with a swab</td>
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<tr>
<td>• Administering injection over clothes</td>
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## Types of Programmatic Errors

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<tr>
<td>Re-use of disposable syringe and needle</td>
<td>• Transmission of blood-borne infections such as Hep. B, HIV, Hep. C</td>
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</table>
| Reconstitution Error/ Wrong vaccine preparation | • Vaccine ineffective  
• Negative effect of drug, e.g. insulin causing death  
• Local abscess |
| • Incorrect diluents                         |                                      |
| • Drug substituted for vaccine diluents      |                                      |
| • Inadequate shaking for T-series vaccines   |                                      |
# Types of Programmatic Errors

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<tr>
<td>Incorrect Injection site</td>
<td>• Local reaction or abscess</td>
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<tr>
<td>• BCG given subcutaneously</td>
<td>• Local reaction or abscess</td>
</tr>
<tr>
<td>• DPT/DT/TT given superficially</td>
<td>• Sciatic nerve damage</td>
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<tr>
<td>• Injection into buttocks</td>
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<tr>
<td>Poor transportation/storage</td>
<td>• Local reaction from frozen vaccine</td>
</tr>
<tr>
<td>• Vaccine ineffective</td>
<td>• Avoidable serious reaction</td>
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<tr>
<td>Contraindications ignored</td>
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</table>
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
True AEFIs

Severe Reactions
– Rare
  ▪ Include seizures,
  ▪ Thrombocytopenia, hypotonic hyporesponsive 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?

Use separate site for each vaccine.
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**

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<tr>
<th>Mild vaccine reactions</th>
<th>Treatment</th>
<th>When to report</th>
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</table>
| Local reaction (pain, swelling, redness) | • Cold cloth at injection site  
  • Give Paracetamol | • In case of an abscess |
| Fever  > 38.5°C        | • Give extra fluids  
  • Wear cool clothing  
  • Give tepid sponging  
  • Give Paracetamol | • When accompanied by other symptoms |
| Irritability, malaise and systemic Symptoms | • Give extra fluids  
  • Give Paracetamol | • When severe or unusual |
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 www.sihfwrajasthan.com or contact: Director-SIHFW on sihfwraj@yahoo.co.in

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