Checklists for Vaccines and Immunization

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Why immunization?

One of the most successful and cost-effective health interventions.

2 to 3 million deaths averted annually by vaccination.

19.3 million infants not fully immunized in 2010.

Excellent immunization services can increase confidence in the health care system overall.
"Over half of the (30%) drop in child mortality since 1990 is attributable to immunization."

Dr Margaret Chan, Director-General, World Health Organization

Why immunization session checklist?

- Checklist for health care worker / vaccinator, supported by m-Health tool for caregiver to:
  - increase quality of vaccination services;
  - ensure completion of vaccine schedules;
  - increase vaccine effectiveness;
  - reduce threats to programme from adverse events (AEFI);
  - improve client confidence in the health care system overall.
Embedded in package of increasing quality and safety awareness, behavior change for health-care workers and empowerment of clients.

Checklist programme may include:

- **SMS reminders to clients when the next vaccination is due based on electronic vaccination schedule**
- **Information on vaccines given, alerts on adverse events and connection to health facility if these should occur**
- **Broader disease prevention messages e.g., for rotavirus, pneumococcal, HPV-related diseases**
- **Feedback from clients on service quality**
Checklist to improve vaccine effectiveness

Loss of vaccine effectiveness due to exposures to adverse conditions is cumulative, permanent and irreversible.

"A study of vaccine potency and efficacy in Nigeria found only 1 of 14 vials used for measles vaccination had virus titer at or above minimum WHO standard, potentially leading to inadequate seroconversion and vaccine failure. This usually has to do with cold chain management at lower levels."

A review of Measles Vaccine Failure in Developing Countries

T. M. Akande
Nigerian Medical Practitioner Vol. 82 No 5-6, 2007 (112-116)
Checklist to reduce adverse events

Tamil Nadu

Four deaths in children following inoculation with measles vaccine due to reconstitution error (not related to vaccine quality)

All vaccination sites instructed to stop use of measles vaccine from this manufacturer

Several million doses of vaccine recalled and State EPI programme interrupted for months
Checklist to reduce adverse events

Ukraine

- Death after MR vaccine in 2009 fuelled vaccine scares and anti-vaccination movement (death was unrelated to vaccine)
- MoH stopped vaccination campaign
- Severe measles outbreaks since and now threatening visitors of European Soccer Championship
WHO working group established

Comprehensive checklist prepared on basis of WHO policy document “Immunization in Practice” (32 items)

AFRO EPI mangers surveyed on common and critical errors; Preliminary literature review conducted

Checklist revised and condensed (18 items)
Guidance for **setting up** the immunization session

- Icepack taken from freezer for conditioning at least 30 minutes before session
- Required quantities of vaccine vials taken out of refrigerator in specific order
- Diluents taken out and matched (quantity and type) with appropriate vaccines
- Checked if vaccines are safe to use (label, expiry date, vaccine vial monitor)
- Checked freeze indicator (if freezing warning appears, perform shake test)
- Vaccine carrier prepared (conditioned ice packs, vaccine vials in middle, foam pad on top) and lid closed tightly
- Equipment for immunization session collected (auto-disable syringes, register, cards, tally sheets)
- List of clients due for vaccination and defaulters prepared and reviewed with community volunteer
- Health care worker / vaccinator washed hands with soap
<table>
<thead>
<tr>
<th>Guidance for <strong>conduct of the</strong> immunization session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caretaker and vaccinee greeted and seated</td>
</tr>
<tr>
<td>Vaccinee’s date of birth and age determined</td>
</tr>
<tr>
<td>Determined which vaccine(s) have previously been received</td>
</tr>
<tr>
<td>Determined all vaccines the client is eligible for according to national schedule</td>
</tr>
<tr>
<td>Contraindications checked</td>
</tr>
<tr>
<td>Immunization register completed</td>
</tr>
<tr>
<td>Vaccines prepared safely (reconstituted with correct diluent, not contaminated during preparation vaccine, in correct quantity)</td>
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</tbody>
</table>
Guidance for **conduct of** the immunization session

- All vaccines administered safely (aseptic technique with no breach of sterility)
- Used syringes disposed of immediately into safety box
- Each vaccine dose recorded in tally sheet
- Immunization card completed with vaccines given and date of next immunization marked
- Key messages given (diseases explained, common adverse events and what to do in case of an AEFI)
- Other health interventions provided as appropriate
- Community volunteers informed about next immunization session
Guidance for **concluding** the immunization session

- Immunization tally sheet completed
- Unopened vaccine vials returned to refrigerator
- Opened vaccine vials to which multi-dose vial policy **does** apply returned to "use first" box in refrigerator
- Opened vials to which multi-dose vial policy **does not** apply discarded
- Unused syringes returned to safe location
- Safety box placed in a safe location
- Full safety boxes handled according to national waste management guidelines
Survey of EPI managers

- Survey among EPI managers' meetings in Africa: 29 country responses
  - Questions asked:
    - What are most frequent errors (commonly overlooked, forgotten or poorly executed) and
    - What are the most critical or consequential errors by health care workers / vaccinators
      - before, during and after an immunization session
## Feedback from EPI managers

### Before session: Common errors

1. Prefilling syringes
2. Not verifying VVM status and expiry date
3. Poor estimation of vaccination materials
4. Not washing hands
5. Poor target population estimates

### During session: Common errors

1. Not using aseptic technique
2. Recapping of needle
3. Wrong injection technique
4. Not explaining to the client which vaccine is being administered
5. Safety box not used

### After session: common errors

1. Waste management policy not respected
2. Vaccinees not advised of next visit
3. Registration and data management not properly done
4. No information on potential adverse events
5. No follow-up on unvaccinated and defaulters
Revised checklist

**Immunization session checklist**

Before clients come for immunization:
- Required quantities of vaccines and diluents vials taken out of refrigerator?
- Diluents matched (quantity and type) with appropriate vaccines?
- Expiry date and VVM status checked for each vial
- Equipment for the immunization session collected and arranged
  - Auto Disable (AD) syringes
  - Safety box
  - Immunization register
  - Immunization tally sheets
  - New immunization cards
  - Rubbish container
  - Paper, pencils, pens

For each client coming for immunization:
- Determined all vaccines the child is eligible according to national schedule and child’s age
- Reconstituted vaccine(s) prepared with correct diluent(s)
- Each injection prepared using aseptic technique (do not prefill syringes)
- Each vaccine administered according to the recommended technique and injection site.
- Used syringes disposed off immediately to the safety box after each injection
- Infant immunization card completed with vaccines given and date of next immunization marked
- Key messages given to caregiver/parent: vaccines given, side effects, date of return

After all clients leave immunization site:
- Immunization tally sheet completed
- Unopened vaccine vials returned to the refrigerator
- Opened vaccine vials to which MDVP is applicable returned to "use first" box the refrigerator
- Opened vials to which MDVP is not applicable discarded
- Safety box placed in a safe location
- Full safety box handled according to national guidelines.
- Community informed of next session and activities planned to reach unvaccinated infants and defaulters.
Next steps

- Literature review on key issues related to vaccine administration and preparation of background document
- Usability testing in 10 to 15 sites
- Pilot testing and evaluation in 2 to 3 countries (SEA countries showing interest)
- Presentation to WHO Immunization Practices Advisory Committee in October 2012 for comments and subsequent endorsement
- Review potential for setting up databases to link local immunization registries with vaccination schedules and m-Health SMS messages to health care workers, clients and caregivers
Other vaccine checklist ideas

**Uptake focus**
- The ‘unchecked’ box
- Identifying non- and under-immunized
- Opportunity
- Ability
- Motivation

**Supply focus**
- Persona profiling
- Hesitancies
- Stock management
- Inventory quality
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