**Original Article:**

**A Study to Assess the Role of Educational Intervention in Improving the Delivery of Routine Immunization Services.**

**Authors**

Manohar Bhatia, Dept. of Community Medicine, GR Medical College, Gwalior,

Ashok Mishra, Professor, Dept. of Community Medicine, GR Medical College, Gwalior,

Manbahadur Rajpoot, 2nd year PG Resident, Dept. Of Community Medicine, GR Medical College, Gwalior.

**Address for Correspondence**

Dr. Manohar Bhatia,
68, Sakhi Vihar,
Sikander Kampoo,
Lashkar, Gwalior - 474001,
Madhya Pradesh.
E-mail: bhatiyamanohar@gmail.com

**Citation**


**Open Access Archives**

http://cogprints.org/view/subjects/OJHAS.html

http://openmed.nic.in/view/subjects/ojhas.html

Submitted: Jun 30, 2015; Accepted: Sep 20, 2015; Published: Oct 15, 2015

**Abstract: Background:** Immunization has been regarded as the most cost-effective intervention for child health promotion. Even after improvements, the developing countries are still struggling with low coverage rates, immunization failure, high rates of adverse events following immunization (AEFI) etc. The present study was conducted to assess the role of educational intervention in improving immunization delivery services. **Methodology:** It was a pre-post intervention observational study carried out in immunization clinics of two tertiary care hospitals. The data from pre and post educational intervention assessment was compared and analyzed using SPSS 10.0. **Results:** At both clinics there was 40% and 45% increase in cleaning of the spoon used for administration of vitamin A. Post-intervention there was 40% increase in use of hub cutter at both the centres. After intervention, there was 30% and 35% increase in the delivery of four key messages by staff nurse. **Conclusion:** Unlike Doctors, the health staff is not motivated for regular touch with the theory part of their work field and continued knowledge up-gradation. This strategy of periodic re-orientation of the topic in the form of educational intervention may help in improving service delivery to the beneficiaries. Further research is required in this aspect. **Key Words:** Routine Immunization, Educational Intervention, Supportive Supervision, Staff Nurse.

**Introduction:**

The Government of India launched its Expanded Programme on Immunization (EPI) in 1978 which has made vaccination against Tuberculosis (BCG), Diphtheria, Pertussis, Tetanus (DPT), Measles and Poliovirus (Oral Poliovirus Vaccine (OPV)) mandatory to all children below 1 year of age. Since 1985, EPI has been renamed as Universal Immunization Programme (UIP). Later on Hepatitis B and Haemophilus influenzae type b (Hib) vaccine was added to the National Immunization Schedule. Mumps, Rubella, Typhoid, Japanese Encephalitis (JE) vaccine etc. are noncompulsory vaccinations but are recommended by the Ministry of Health.

Immunization has been regarded as the most cost-effective intervention for child health promotion by the World Health Organization. Immunizing a child significantly reduces costs of treating diseases, thus providing a healthy childhood and reducing poverty and suffering.

Even after improvements, the developing countries are still struggling with low coverage rates, immunization failure, high rates of adverse events following immunization (AEFI) etc. EPI target diseases are one of the leading causes of high childhood morbidity and mortality, as evidenced by high Infant Mortality Rates (IMR) in developing countries. The challenge for authorities and immunization service providers, therefore, is to provide adequate and appropriate immunization delivery services to the community.

The concept of standard precautions, with mandatory safe practices, must be routinely applied in all health care settings, and every person in such settings should be considered a potential source of infection.

Adherence to immunization safety principles reduces the risk of transmission of microbial infections through injections, adverse reactions, complication of vaccine reactions and vaccine failures. Unsafe injection practices are very common in our country and can result in person to person transmission of many infections like Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV) and Hepatitis C virus (HCV).
They can also cause abscesses and other bacterial infections and toxic reaction.

Immunization safety can thus be achieved by building technical competence of health care providers about immunization safety principles, behavioral improvements among health care providers and professionals, availability and sustained supply of safe injection equipment and safe and appropriate management of injection waste.

Supportive supervision is a known process of helping staff to continuously improve their own work performance. But it is time consuming and also requires large number of trained supervisors and other resources. This also leads to less frequent supervisory visits and thus performance suffers. So to cover this gap, along with supportive supervision, re-orientation sessions in the form of educational intervention can be started for health staff.

The present study was conducted to assess the role of educational intervention in improving technical competence, behavioral aspects, safe injection and biomedical waste disposal practices of health workers in immunization delivery services.

Methodology:
The present study was an observational study carried out in immunization clinics of two tertiary care hospitals. The study tool was an immunization check list pertaining to our study, drafted with the help of various supervision check list used by medical officers for routine immunization practices. Each clinic was visited and the staff nurse performing immunization was observed. Permission to visit the clinics was obtained from appropriate authorities and ethical approval for the study was obtained from Ethics Committee, Gajra Raja Medical College, Gwalior.

Each clinic was visited by a third year post graduate student for 3 days and immunization check list was filled for 20 cases. The data generated was tabulated. On the basis of data obtained, educational intervention was planned for the staff nurses which included topics related to safe immunization, safe injection practices, bio-medical waste disposal and key messages to mothers.

Educational intervention was followed by post intervention assessment for three days and again 20 immunization check lists were filled. Post intervention assessment was conducted by another third year post graduate student so as to maintain anonymity. The staff nurses were kept unaware of both pre as well as post intervention assessment.

The data from post intervention assessment was tabulated and compared with that of pre-intervention data- percent change in various immunization activities was calculated and analysis of results was carried out on SPSS 10.0.

Educational intervention
This re-orientation session included the details about vaccine vial monitor (VVM) - to understand the stages of VVM and the discard point; reconstitution of vaccines and appropriate use of ice-packs for keeping in-use vaccines along with sensitization of ice packs; discarding the vaccines after the stipulated time period; record maintenance- expiry date of each vaccine and time of opening every vial; recording temperatures of dial thermometer inside ILR; delivery of four key messages to parents; safe injection practices and appropriate disposal of bio-medical waste and administration of Vitamin A with a clean spoon.

<table>
<thead>
<tr>
<th>Observations</th>
<th>Table 1: Pre and Post intervention Assessment: Madhav Dispensary</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. No.</td>
<td>Observation</td>
</tr>
<tr>
<td>1.</td>
<td>Staff Nurse Checked Expiry Date</td>
</tr>
<tr>
<td>2.</td>
<td>Staff Nurse Maintains Register</td>
</tr>
<tr>
<td>3.</td>
<td>Spoon used for administration of vitamin A is cleaned before next use</td>
</tr>
<tr>
<td>4.</td>
<td>Reconstituted vaccine kept on ice pack after each use</td>
</tr>
<tr>
<td>5.</td>
<td>All AD and disposable syringes cut with hub cutter after use</td>
</tr>
<tr>
<td>6.</td>
<td>Waste Material disposed as per guidelines</td>
</tr>
<tr>
<td>7.</td>
<td>Staff Nurse gives four key messages</td>
</tr>
</tbody>
</table>

| Table 2: Pre and Post intervention Assessment: District Hospital, Morar |
|--------------|---------------------------------------------------------------|
| S. No.       | Observation | Pre-intervention Assessment (20) | Post-intervention Assessment (20) | % change |
| 1.           | Staff Nurse Checked Expiry Date | 16 | 20 | 20% |
| 2.           | Staff Nurse Maintains Register | 20 | 20 | -- |
| 3.           | Spoon used for administration of vitamin A is cleaned before next use | 02 | 10 | 40% |
| 4.           | Reconstituted vaccine kept on ice pack after each use | 07 | 20 | 65% |
| 5.           | All AD and disposable syringes cut with hub cutter after use | 06 | 14 | 40% |
| 6.           | Waste Material disposed as per guidelines | 08 | 17 | 45% |
| 7.           | Staff Nurse gives four key messages | 01 | 08 | 35% |
The data generated by our study revealed that the immunization procedure was not up to the mark even in tertiary care centres. Many important aspects of safe injection practices and bio-medical waste management were missed by health staff. There was considerable improvement after the educational intervention.

At Madhav Dispensary, after intervention, it was seen that the staff nurse checked the expiry date of all the vials; so there was a positive change of 20%. After intervention it was seen that there was 45.00% increase in cleaning of the spoon used for administration of vitamin A; though still it was not cleaned in all the cases. After intervention it was seen that there was increased practice of keeping reconstituted and in-use vaccines back on ice pack after each use. Post-intervention there was 40% increase in use of hub cutter and 35% positive change in waste material disposal though the bio-medical waste disposal guidelines were still not followed in 100% cases. After intervention it was seen that there was 30% increase in delivery of four key messages by staff Nurse though the message was still being delivered in less than 50% cases. (p=0.002)

At District Hospital, Morar, post-intervention, it was seen that the staff nurse checked the expiry date of all the vials; so there was a positive change of 20%. After intervention it was seen that there was 40.00% increase in cleaning of the spoon used for administration of vitamin A; though still it was not cleaned in all the cases. Post-intervention, the practice of keeping reconstituted and in-use vaccines back on ice pack after each use was seen in 100% cases. Post-intervention there was 40% increase in use of hub cutter and 45% positive change in waste material disposal, though the bio-medical waste disposal guidelines were still not followed in 100% cases. After intervention it was seen that there was 35% increase in delivery of four key messages by staff Nurse though the message was still being delivered in less than 50% cases. (p=0.004)

Discussion
A post intervention study done in Odisha showed that the management practices at ILR points on key routine immunization components were found to have improved significantly in intervention districts. The study also revealed that addressing systemic issues, such as the availability of essential logistics, supply chain management, timely indenting, and financial resources, could complement the supportive supervision strategy in improving immunization service delivery.

A study conducted in Bellary showed that supportive supervision has an independent role and might be a significant contributor for overall immunization program strengthening. From health service point of view the supportive supervision intervention has helped the immunization program managers to understand the significance of supportive supervision. The results of a study done in Georgia suggest that the intervention package resulted in a number of expected improvements. The intervention independently contributed to relative improvements in district-level service delivery outcomes such as vaccine wastage factors and the DPT-3 immunization coverage rate. The statistical significance of results on effectiveness suggests that performance at immunization sessions have been greatly improved since the intervention strategy was launched. The average performance score consistently improved and good performance was maintained or improved, as measured at subsequent supervision visits.

Conclusion
Various studies have made it clear that supportive supervision has an independent role in improving different aspects of routine immunization services. It appears that the low frequency of supportive supervision due to manpower shortage is compromising with the knowledge re-orientation and upgradation of health staff. This can be looked after by educational intervention. The faculty and postgraduate residents of community medicine who are trained in routine immunization practices can be utilized for this purpose as the resource persons for educational intervention.

Data from present study clearly indicates a significant improvement in delivery of routine immunization services after educational intervention. Previous studies have outlined the effect of supportive supervision on performance and knowledge of health staff. Unlike Doctors, the health staff is not motivated for regular touch with the theory part of their work field and continued knowledge upgradation. The Educational intervention which is somewhat different from supportive supervision should be repeated at regular intervals to keep the health staff updated and in touch with theory part of their work field.

Supportive supervision has its own merits and limitations and it can be upgraded by adding to it an educational intervention strategy. This strategy of periodic re-orientation of the topic may help in improving service delivery to the beneficiaries. The fact that immunization program needs to be run for an indefinite time further emphasize the role of educational intervention. Further research is required in this aspect.

References