Sharp Waste Management and Counselling of Adverse Effects Following Immunization : A Cross Sectional Study

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ABSTRACT

Introduction: In developing country like India immunization is one of the most cost effective intervention in preventing vaccine preventable diseases. Immunization generates significant sharp waste. Unhygienic and unsafe disposal of sharp waste puts the health care personnel and health care beneficiaries at risk. Counseling of parents of recipients of immunization is important aspect which is overlooked most of the time. Safe disposal of sharps and counseling of adverse effects following immunization (AEFI) have a direct impact on the immunization program. This study is done to observe injection practices, healthcare workers involved, counseling practices and knowledge of mothers of beneficiaries regarding vaccines administered.

Materials and methods: It was a cross sectional observational study done for period of 1 year. 44 sub centers of Vizianagaram district were visited on immunization days. Various components of immunization were supervised including the counseling session. Data was recorded using observational checklist.

Results: All 44 immunization centers were using auto-disabled(AD) syringes during immunization sessions and stock register was maintained at all the centers. Separate room for immunization was available in 32 (72.7%) centers. Red and black bags were available in 6 (13.5%) centers and presence of functional hub cutters in 36 (81.8 %) centers. Only 28 (63.6%) vaccine administrators used gloves. Needles were being cut immediately after an injection in 32 (72.7%) centers and chemically disinfected in 16 (36.6%) centers. In 36 centers chemical disinfection of used syringes was done. Majority (68.1%) did not use puncture proof containers for disposal of sharp waste. Counseling time is too short and post vaccination phenomenon not explained to the parents. Counseling is not done on one to one basis. Its a general group counseling and lasted for only 2-3 minutes. Majority of mothers don't know the name of the vaccine given and almost all have no idea regarding the purpose of immunization.

Conclusions: All the centers were maintaining adequate stock of AD syringes and all are using auto-disabled syringes for immunization. Non availability of puncture proof bags, touching of needles during injections, non disposing of injections immediately and not wearing gloves which are observed needs corrective measures. Immunization sessions are mainly done by nurses/ ANMs, it should be supervised by medical officer. Counseling time need to be enhanced, it needs to be done on one to one basis and mothers of beneficiaries to be given detailed information regarding vaccine given and its benefits and adverse effects. All recipients of vaccine should be observed for full 15 minutes after immunization.

Keywords: Sharp waste, AEFI counseling, immunization, Subcenters

INTRODUCTION

Immunization of majority of under five children is done at the sub centers and Primary Health Centers. Immunization is one of the most cost effective health interventions and proven tool for controlling and eliminating Vaccine Preventable Diseases. Globally immunization prevents over 3 million deaths each year.[1] India's Expanded Program of immunization which was started in 1976 is one of the largest in the world in terms of quantity of vaccines used, target population it caters to, number of vaccine sessions organized and number of primary and sub centers involved in the process. Most of vaccines in the immunization schedule are administered via injections. According to WHO, safe injection practices are one that do not harm the recipient, do not expose the health care worker to any risk and do not result in waste that puts the community at risk.[2] According to IPEN study, 3-6 Billion injections are administered annually in India.[3] Majority of them were administered for curative purposes and immunization accounts for 5-10% of all injections administered.[4] 63% of total injections administered are found to be unsafe in India.[5] Sharp waste generated during immunization sessions can be hazardous to health care personnel and community if not properly segregated, stored and disposed. It also results in pollution of the environment. Safe injection practices and proper counseling are essential for successful implementation of immunization program.

In this study injection practices, sharp disposal practices, healthcare workers involved during immunization session were observed. Counseling session for adverse effects following immunization (AEFI) were studied. Mother's knowledge regarding vaccine administered and its usefulness was also noted.

MATERIALS AND METHODS

It was a cross sectional observational study conducted over a period of one year from october 2014 to september 2015. 44 immunization centers were selected by convenient sampling from all sub centers of Vizianagaram district. Investigators who are the postgraduates of department of pediatrics and community medicine visited these centers on immunization days ie Wednesday and Saturdays. The investigators were

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trained by the authors regarding safe injections practices and how to collect the data using observational checklist. Checklist was prepared jointly by department of pediatrics and community medicine.

Each trained investigator also supervised various components of routine immunization activities along with AEFI counseling practices of the health care workers on immunization days.

Data collected was on logistics available at the session sites namely availability of separate immunization room, Auto-disabled syringes 0.1, 0.5 ml, functional hub cutter, red and black bag, whether vaccine administrator is touching any part of the needle while giving injection, whether vaccine administrator is wearing gloves or not, whether each needle being cut with hub cutter immediately after use, chemically disinfected and disposed. Supervision of immunization sessions by medical officer is noted. Counseling session details regarding the duration of session, information on vaccine adverse effects, post vaccination observation period were noted. Mothers were given questionnaire regarding vaccine administered and usefulness of vaccine given to their child. Collected data was coded and entered in excel sheet and analyzed using trial version of epi Info version 7.

RESULT

All centers were using AD syringes during immunization session (Table 1). Out of 44 centers visited, all had adequate stock of 0.1, 0.5, 5 ml syringes. AD syringe stock register was maintained in all centers. Separate injection room was available in 32 (72.7%) centers. Red and black bags were available in 6 (13.5 %) centers and presence of functional hub cutters in 36 (81.8 %) centers (table 1). Only 28 (63.6%) of vaccine administrators were using gloves while administering vaccine. Needles were being cut immediately after an injection in 32 (72.7%) centers and chemically disinfected in 16 (36.6%) centers (Fig 1). Disposal pits for sharps were present in 26 (59.9%) of the centers visited. In 36 (86.3%) centers chemical disinfection of used syringes was carried out but 28 (68.1%) centers did not use puncture proof containers for disposal of sharp waste (Fig 2). Maternal and child health cards were available at all (100%) immunization centers. Counseling sessions were of 3±1min mean duration and information regarding minor AEFIs (mild fever, pain, tenderness, swelling) was given to all beneficiaries (100%), but no specific information was given regarding post vaccination phenomenon (Table 2). Information on intended purpose of vaccine is also not been told to parents. All beneficiaries (100%) were asked to report to PHC if any complaint occurred. Only 22 (50%) beneficiaries were asked to wait for 15 minutes after immunization for observation (table 2). 10(23.1%) of mothers accompanying beneficiaries knew which vaccine was being given to the child but no mother (0%) knew the exact purpose of vaccination.

	Yes	No
Availability of logistics		
A. O.1 ml AD syringe	44 (100%)	0
B. O.5 ml AD syringe	44 (100%)	0
C. 5 ml syringe	44 (100%)	0
D. Functional Hub cutter	36 (81.8%)	8 (18.2%)
E. Red and black bag	6 (13.5%)	38 (86.5%)
2. Use of AD syringe	44 (100%)	0
3. Use of functional hub cutter	32 (72.7%)	12 (27.3%)
4. Use of gloves	28 (63.6%)	16 (36.4%)
5.Chemical disinfection of sharps	16 (36.6%)	28 (63.4%)
6. Disposal pit for sharps	26 (59.9%)	18 (40.1%)
7. Stock maintenance of syringes	44 (100%)	0
8. Separate injection room	32 (72.7%)	12 (27.3%)
9. Puncture proof containers	16 (31.9%)	28 (68.1%)
10. Maternal and child health card	44 (100%)	0

Table-1: Base line data of Logistics and management of sharps

	Yes	No
1. Minor AEFI	44 (100%)	0
2.postvaccine phenomenon explained	0	44 (100%)
3.Adviced to report in case of complaint	44 (100%)	0
4.Adviced to wait for 15min after immunisation	22 (50%)	22 (50%)
5. Name of vaccine given	10 (23.1%)	34 (76.9%)
6.Purpose of immunization	0	44 (100%)

Table-2: Data on AEFI counseling

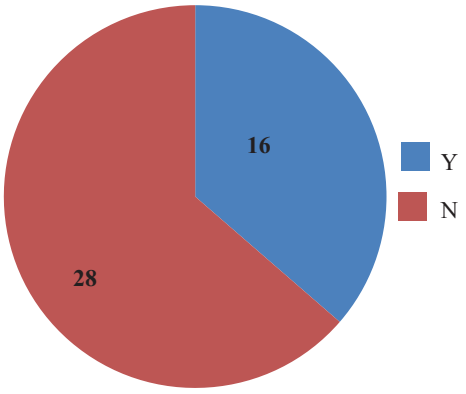

Figure-1: Sharp waste disinfected after session

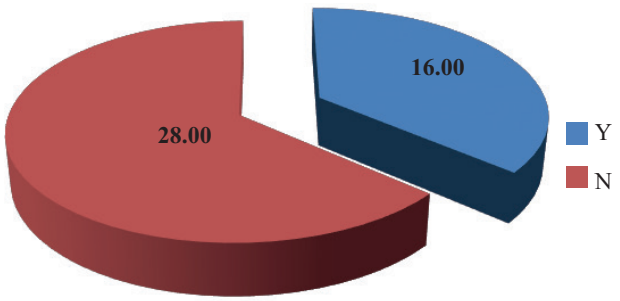

Figure-2: Not using puncture proof container

DISCUSSION

In this study it was observed that all centers were using AD syringes during immunization session. Use of AD syringes is made mandatory for immunization purposes and supplied free of cost by governmental agencies. Similar findings are reported by Jyoti J et al.[6] In developing countries unsafe injections practices are reported to be more than 50%.[7] Various unsafe practices were observed during the study. 63.4% nee-

dles were not disinfected before disposal and 68.1% centers did not use puncture proof container for disposal of sharps. 36.4% of vaccine administrators did not use gloves. In 3 centers manual bending of needles by healthcare workers observed. In 40.1 % centers no sharp disposal pits exist. Sharp waste is carried manually to main PHC for disposal in 40.1 % of centers. Management of sharp waste in unsafe manner will put the health care workers to risk of Hepatitis B, C and HIV. There is risk of 32% new Hepatitis B infections,22% of hepatitis C and 5% of HIV infection with unsafe injections practices.[8]

Counseling regarding minor AEFIs like mild fever and pain was explained to the beneficiary. Post vaccination phenomenon not explained to the mothers. Trained medical officer was not involved in the counseling process and most immunizations sessions were not supervised by medical officer. Intended purpose of vaccine and disease it prevents is not explained to the mothers. Only 23.1 % mothers could tell name of the vaccine given to their child and only 50% beneficiaries were asked to wait for 15 minutes after immunization.

RECOMMENDATIONS

- Awareness regarding needles to be cut immediately after an injection and disposed safely immediately rather than at the end of immunization session.
- Puncture proof containers should be made available in all centers.
- Encourage use of gloves.
- Discourage touching of needles before or after immunization.
- In centers without disposal pits manual transport of sharp waste to be discouraged. waste can be outsourced to common treatment facility.
- Supervision of immunization session by medical officer.
- Counseling of all aspects of vaccine administered must be done to the beneficiary.
- All recipients of vaccine to be observed for 15 minutes post immunization.
- As Newer combined vaccines are introduced in immunization program there is need for continuous training of health worker regarding the vaccine and its adverse effects.

CONCLUSION

This study observed that all the centers were using AD syringes for injections. Separate immunization room existed in majority of centers. Many unsafe practices noticed during this study need corrective interventions.

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