

ORIGINAL RESEARCH

Universal Immunization Program (UIP) of India: Addressing the barriers to Routine Immunization of infants as perceived by Health Visitors, ANMs and AWWs in a rural area of Uttar Pradesh

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ABSTRACT

Background: According to NFHS-5, 2019-21, the country's full immunization coverage stands at 76.1 per cent, which means that one out of every four children is missing out on essential vaccines. However, India has still not reached international standards with respect to full immunization coverage. In Countries such as USA, the percent of children vaccinated by the age 24 months: Diphtheria, Tetanus, Pertussis (4+ doses DTP, DT, or DTaP) is 80.4% and for three doses of Polio vaccine is 92.5%. The present study reflects factors affecting implementation of Routine Immunization services of Infants in a rural area of Uttar Pradesh. The barriers for full immunization coverage have remained unaltered for many years and require careful scrutiny and action Health Visitors (HV), ANMs (Auxiliary Nurse midwife) and AWWs (Anganwadi workers) play a significant role in the implementation of UIP in India, especially in rural areas. However, their role has not received adequate attention and this may be a significant factor in the stagnation of Routine Immunization coverage rates in Empowered Action Group (EAG) states of India. This is a study to understand the barriers of routine immunization of infants, as perceived by the HV, ANMs and AWWs. **Methods:** A carefully designed Interview schedule was used during August-September 2005, to define the barriers of effective Immunization Health care delivery (IHCD) in block Bsirakh, one of the five blocks of Gautam Buddha Nagar (GBN) district, Uttar Pradesh. Focus Group discussions were held and HV, ANMs and AWWs were interviewed in a group session and observations recorded. Relevant findings were recorded which have a direct impact on IHCD have been presented in the study. Also, inputs for role definition of Accredited Social Health Activist (ASHA) to be positioned in EAG states under the National Rural Health Mission were sought from the ANMs and AWWs. **Results:** According to RHS-2, the Immunization coverage in the study area was 48%. The most important barriers identified were 1. Lack of adequate training of ANMs and AWWs, as they did not have adequate capacity to handle adverse events following immunization (AEFI) in the community. 2. Lack of clear role definitions of ANMs and AWWs led to confusion during implementation of the UIP. 3. Missed opportunities. 4. Lack of motivation of AWWs 5. Lack of adequate staff 6. Non-availability of A-D syringes 7. Lack of monitoring and supervision at the block level. **Conclusions/Interventions:** Important interventions to the increase immunization coverage include 1. Re-orientation of the training of the field staff, with emphasis on negotiating skills and communicating with the community regarding AEFIs. 2. Role definition: Defined job responsibilities for each 3. Motivation of AWWs: Try Incentives for good work 4. Alternative arrangements to avoid missed opportunities. 5. Rearrangement/ contractual staff/NGOs/Private practitioners to fill vacancies. 6. Adequate supervision and monitoring by superiors 7. Introduction of A-D syringes may be through user charges, if necessary. 8. ASHA for motivating the community and helping in immunization

Key words: AEFI, AWWs, Routine Immunization Coverage, Barriers to coverage

Abbreviations used: AEFI: Adverse events following Immunization ASHA; Accredited Social health Activist; ANMs: Auxiliary Nurse Midwife AWWs: Anganwadi workers; EAG: Empowered action group state; HV: Health Visitor; PPI: Pulse polio Immunization; UIP: Universal Immunization Program

Kindly Note: The present study is a part of thesis conducted which was entitled 'A study of Factors affecting implementation of Routine Immunization services of Infants in a rural area of Uttar Pradesh'

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INTRODUCTION AND RATIONALE

According to NFHS-5, 2019-21, the country's full immunization coverage stands at 76.1 per cent, which means that one out of every four children is missing out on essential vaccines. However, India has still not reached international standards with respect to full immunization coverage. In Countries such as USA, the percent of children vaccinated by the age 24 months: Diphtheria, Tetanus, Pertussis (4+ doses DTP, DT, or DTaP) is 80.4% and for three doses of Polio vaccine is 92.5%. Earlier studies have indicated a slow rise in full immunization coverage, but this has still not reached a satisfactory level. In this article, an earlier study is presented which analyzes factors responsible for such a stagnation. The present study reflects factors affecting implementation of Routine Immunization services of Infants in a rural area of Uttar Pradesh. The barriers for full immunization coverage have remained unaltered for many years and require careful scrutiny and action.

Immunization of Infants is one of the most effective Public Health interventions, which can have a tremendous impact on childhood morbidity and mortality due to its ability to decrease the burden of vaccine preventable diseases (VPDs). It has also been accepted as one of the most appropriate technology, which has saved millions of lives not only in India, but throughout the world. (WHO, 2001)

According to NFHS-2, the percentage of children who were fully vaccinated ranged from 11 percent in Bihar to 89 percent in Tamil Nadu. Among the northern states, Bihar (11 percent), Assam (17 percent), Rajasthan (17 percent), Uttar Pradesh (21 percent), and Madhya Pradesh (22 percent) emerged, as the ones with poor coverage and having a much lower percentage of children fully vaccinated than the national average of 42 percent. (NFHS-2, 1999)

Immunization is also an important socio-demographic goal, to be achieved by 2010, as mentioned in The National Population Policy 2000. (GOI, 2000) Universal Immunization Program (UIP) was initiated in November 1985, universalizing the already existing EPI (Expanded Program of Immunization). The target was immunization coverage of 85 per cent infants for protection from vaccine preventable diseases (VPDs) and 100 per cent coverage of pregnant women with 2 doses of TT. To achieve this goal, 18.5 million infants and 22 million pregnant women were required to be protected. A substantial work force, massive input of resources and intensive efforts were provided for to implement the program. (NIHFW, 1989)

However, UIP, which had been progressing well in the early 90s, started showing a declining trend recently, as observed from the routine coverage data of the third dose of DPT3. This decline was

significant in some Northern states as shown by the estimates of WHO/UNICEF, for the periods following 1995 and also based on coverage evaluation surveys (CES), Multi-Indicator cluster surveys (MICS) and the second NFHS. (GOI, 2004) (WHO, 2004). Surveys indicate that there had been a decline in coverage in all states upto 1998 (except the states of Tamil Nadu and Goa). (Sunder Lal, 2003) These northern states accounted for more than 40 percent of the total population of the country and their low coverage for vaccination pulled down the coverage rate for the country as a whole.

The Government of India had taken steps to augment immunization coverage, especially in these Northern poor performing states with high fertility also. Eight states had been identified, and these were Bihar, Chattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and Uttranchal. These states which have been referred to as Empowered Action Group (EAG) states have, Immunization as one of the thrust areas for focused action under the National Common Minimum Program. (GOI, 2004). Why the UIP program despite achieving near total coverage during the Technology Mission faltered in the northern states and its reasons are clearly very vital to understand. There could be many causes of low routine immunization coverage, especially in the rural areas of EAG states of India. In many areas the access to immunization may be poor because of provider's constraints. Factors which had contributed to poor access, were low levels of awareness regarding vaccine preventable diseases, missed opportunities, misconceptions about immunizations and other obstacles of immunization. Inadequate human resource management of the health workforce was another cause of setback to routine immunization coverage in India. The present study was undertaken to elicit the factors affecting the low coverage levels of routine immunization especially those perceived by the HV, ANMs and AWWs, in one of the EAG State and to recommend strategies for enhancing coverage.

METHODS

This study was carried out during August-September 2005, to define the barriers to effective routine immunization delivery in block Birsakh, The study population consisted of HVs, ANMs and AWWs, in this rural area of Uttar Pradesh. The tool used in this study was a Focus Group discussion. (Focus Group Discussions (FGDs) of Health workers). FGDs are in-depth tools for understanding the perception and ideas of the community and were used here to elicit the prime barriers affecting immunization coverage. Recording was done with a help of an assistant and sub-themes identified and noted. Health visitors,

ANMs and AWWs are the health workforce, who play a critical role in the delivery of immunization services. Their perceptions are of immense importance to understand the provider's factors, which can affect routine immunization of infants, especially in rural settings. FGDs of health providers was conducted, at PHC/SC and their observations noted and stratified into sub-themes. They were interviewed in a group session and observations recorded. Relevant findings were recorded which have

a direct impact on routine Immunization delivery have been presented in the study. Also, inputs for role definition of Accredited Social Health Activist (ASHA) to be positioned in EAG states under the National Rural Health Mission were sought from the ANMs and AWWs. 14 health workers participated in the FGDs of which 4 were health visitors, 4 were ANMs and 6 were AWWs. The mean age of HV was 52.1 years, ANMs was 42.5 yrs and AWWs was 28.6 yrs. All participants were females.



ANALYSIS OF FGDs

The strategic themes generated as a result of content analysis of FGDs were stratified based on recurrency after a spread-sheet analysis

Characteristics of Responders (n=14)

S No	Health worker	Sex	n (%)	Mean Age
1.	Health Visitor	All females	4 (28.5%)	52.1 yrs
2.	ANM	All females	4 (28.5%)	42.5 yrs
3.	AWW	All females	6 (43%)	28.6 yrs

SELECTION OF SUB-CENTRES

For selection of sub-centres, a multistage sampling was done. In the first stage Gautam Buddha Nagar (GBN) was selected because of lower full immunization coverage among the districts in Uttar Pradesh. Gautam Buddha Nagar (GBN) district consists of five blocks, which includes Bisrakh, Dadri,

Dankaur and Jewar and Noida. Noida block was not considered because of a higher immunization coverage and block Bisrakh was randomly selected. In the third stage in one block, one PHC was selected randomly followed by random selection of 2-3 sub-centres selected randomly in that PHC. In the selected PHC, all the HV, ANMs and AWWs were

interviewed regarding providers factors affecting Immunization coverage.

RESULTS

According to RHS-2, the Immunization coverage in the study area was 48%.

Factors elicited from the FGDs

1. Training issues of ANMs

The ANMs had taken training at various training centers in the state, which included, Sultanpur ANM training center, District Pratapgarh ANM training center and District Bareilly Training Center. ANMs felt that the training imparted to them was inadequate in building skills for injection on the antero-lateral part of the thigh; negotiation skills with the communities after AEFIs; arranging for vaccination in the absence of vaccines or when ANMs was unable to attend the immunization session. (Missed Opportunities)

2. Lack of adequate number of AWWs (Human resource factor)

Most ANMs explained that one of the foremost causes of low immunization coverage in Bisrakh block was lack of adequate number of AWWs. Most of the AWWs were paid a monthly salary of Rs 1200 per month, which in the first place was inadequate and was too low. Further, in many cases this amount has not been paid for six months; hence unpaid AWWs are not ready to work any further. This was an important overlooked de-motivating factor, which was often overlooked. Due to lack of AWWs, the entire workload had shifted to ANMs, who were already overburdened with their own work in the first place. As a result, the mobilization and awareness generating activities of routine immunization of infants suffered substantially and this was one among the many other causes (vide infra) of low routine immunization coverage in the block. Lack of adequate number of AWWs profoundly affected the tracking of partially immunized and non-immunized infants which ultimately led to low full routine immunization coverage

3. Refusal by Grandparents after AEFIs. (Adverse Events following Immunization)

Few of the AWWs commented that once an infant had suffered from fever or an abscess following immunization, there was a tremendous pressure on the mother from the grand parents to discontinue immunization. The confidence in the quality of immunization services was thus shattered and the mother discontinued further immunization of the infant. It is thus essential to introduce AEFI surveillance system in these districts, so as to improve the confidence of the community regarding routine immunization of infants.

4. Pulse Polio Immunization and Routine Immunization

Most ANMs said that the Pulse Polio Immunization (PPI) program also puts additional pressure on routine immunization activities. PPI was thoroughly

monitored with regular training sessions were held for its preparation and implementation. Separate workforce was employed which usually came from Delhi. More funds were available for logistics/transport/monitors of PPI. Thus, monitoring was only done for Oral Polio Vaccine administration and not for vaccines used for routine immunization. Such was the pressure for PPI and partly because of understaffing, that the routine immunization was neglected during NIDs (National Immunization Days) and sNIDs (Sub National Immunization days) of PPI. This had a profound adverse effect on routine immunization coverage of infants. However, this partly had a beneficial effect too, as the community had been educated on the beneficial effects of vaccination by house-to-house campaign of PPI.

5. Lack of adequate participation of Male Health workers

Although the male health workers were supposed to take part in school immunization services, most of them only undertook tuberculosis and malaria detection activities. This lack of active participation of male workers in routine immunization services was partly due to lack of adequate supervision of senior officials.

6. Logistic related problems for boiling syringes and non-availability of AD syringes

Some ANMs explained that for the routine immunization of infants, ANMs were provided with 24-gauge needle, which at times caused pain to the infant. These syringes required a boiler, which at times did not work because of lack of electricity; In most cases boiling of glass syringes was done in an open vessel on a stove for which kerosene was needed but was not made available leading to a 'missed opportunity'. One of the causes of missed opportunities is non-availability of kerosene. Many mother's preferred to buy AD syringes instead of pre-boiled glass syringes and in case AD syringe was not available, no immunization took place, which was another cause for a missed opportunity. Lack of syringes and needles at the sub-centre, itself for immunization is an important neglected cause of missed opportunity for those mothers who refused to buy from the market.

7. Fear of infertility following OPV

Few of the AWWs in a particular block said that fear of infertility due to OPV was a crucial factor, especially seen in Dadri Block. This indicated is a lack of IEC and community involvement.

8. Lack of IEC activities

All ANMs and AWWs said that IEC activities were not routinely held to increase awareness regarding the need of immunization and about Vaccine Preventable Diseases in the community. Lack of staff led to low mobilization and this factor compounded by low level of literacy was an important factor of low level of routine immunization coverage. Understaffing prevented this important activity which is thus led to low community participation.

9. Lack of adequate knowledge about VPDs

Most of the ANMs said that mothers lacked adequate knowledge regarding, vaccine preventable diseases and the need of immunization. This partly stems from the fact that the level of literacy was low among females in the block, compounded by a lack of IEC activities regarding immunization.

10. Cultural issues

Few of the AWWs stated that in certain sections of the community, unless there was an announcement from a religious head regarding immunization, most mother's, did not come for the immunization session and regular announcements were not made.

11. ANMs opinion on the proposed role of ASHA

The ANMs welcomed the decision of creating another functionary 'ASHA'. With regards to immunization they felt ASHA could help in (a) organizing outreach sessions whenever required. (b). Create awareness regarding VPDs in the community. (c). remove misconceptions, regarding the side effects of vaccination by counseling the affected families. (d). Follow-up on routine immunization services and management of fever, abscesses etc. (e). Counsel Grandparents and help in removing cultural taboos and negative pressures if an infant had fever after

vaccination. To summarize the most important barriers which were identified were as follows :-

1. Lack of adequate training of ANMs and AWWs, as they did not have adequate capacity to handle adverse events following immunization (AEFI) in the community.
2. Lack of clear role definitions of ANMs and AWWs leading to confusion during implementation of the UIP.
3. Missed opportunities.
4. Lack of motivation of AWWs.
5. Lack of adequate staff.
6. Non-availability of A-D syringes and
7. Lack of monitoring and supervision at the block level
8. Lack of IEC activities in the community

DISCUSSION

Suggested Interventions for improving immunization coverage

Important interventions to the increase immunization coverage include:-

1. **Re-orientation training of the field staff with emphasis on negotiating skills and communicating with the community regarding AEFIs. (Adverse Events following Immunization)**

There was an urgent need to improve skills during training regarding contraindications of vaccines and increase knowledge about AEFIs.

"AEFIs are defined as medical incidents that takes place after a child has received immunization and which may cause concern to the parent/provider. Some of these could be serious and life threatening and may require immediate hospitalization and may cause disability or mortality or they could be minor" (MOHEW 2006)

It was important to institute a comprehensive AEFI surveillance system in the district to instill more confidence in the community and decrease their fear of vaccine side effects. Lack of adequate training to handle logistics and misconceptions in the community are evident from the comments made by the providers. Khan ME, et al, 1996 in their rapid appraisal of training of ANMs in Uttar Pradesh concluded that overall the technical knowledge of ANMs irrespective of their training status was very poor. Only 40 per cent knew about the correct quantity of BCG to be given. Also, only 15 per cent of trained ANMs knew that children suffering from mild fever or diarrhea could be immunized. Another 15 per cent of trained and 7 per cent of untrained ANMs were able to respond correctly that measles vaccine had to be used within 2 hours of opening. Most ANMs were able to recognize the symptoms of complications but they failed to acquire knowledge needed to manage them. Similar findings have been reported by Tugumisirize F et al, 2002 who concluded in their study of low immunization coverage in Uganda that health worker's education was critical to improve the immunization coverage. Thus, there is an urgent priority for the program to upgrade skills on safe injection practices, micro-planning and tracking

partial or non-immunized children together with record maintenance.

2. **Role definition: Defined job responsibilities for each Health worker.**

The lack of adequate participation of male health workers in routine immunization could be improved by clarity of job definition and increased supervision by superiors. As the envisaged job tasks for male health worker clearly depicts involvement with school immunization services, community mobilization and creating awareness of VPDs ; their non-participation led to lack of implementation of these services.

3. **Alternative arrangements to avoid missed opportunities (Human resource constraint)**

The effect of Pulse Polio Immunization (PPI) on routine immunization services could be a factor responsible for missed opportunities. The diversion of health staff during PPI rounds was another human resource constraint which could be circumvented by increasing the staff strength or hiring contractual staff during the PPI rounds. As (Bonu S et al, 2004) pointed out that prevailing additional logistics as well as human resource inputs for PPI would cease with polio eradication, then routine EPI services would be needed to be strengthened substantially, so as to

improve social equity in the coverage of non-polio EPI vaccines.

4. Rearrangement/contractual staff/NGOs/Private practitioners to fill vacancies. Motivation of AWWs: Try Incentives for good work.

The lack of adequate health staff was an important factor which needed to be addressed for low immunization coverage. One of the emerging themes as commented by the health staff in the Gautam Buddha Nagar district was inadequate number of AWWs, which was an important barrier towards full routine immunization coverage. Health workforce is one of the most crucial determinants of successful healthcare delivery in the world today. Dr LEE Jong-wook, Director-General of WHO, had aptly commented that the most important issue confronting decision makers in health today was the crisis in the human resource sector. (WHR, 2006) The theme of the World Health Report 2006 'Working Together for Health'; clearly reflects the current crisis in the global health scenario. The world faced an estimated shortage of almost 4.3 million doctors, midwives, nurses and support workers worldwide (WHR, 2006). Lack of adequate health workforce needs to be addressed urgently and it is important to fill vacancies and provide adequate strength to the routine immunization workforce. The shortage of AWWs could be partly compensated by recruitment of ASHA as they would act as motivators for partially and non-immunized infants in the community. However, non-availability of AWWs need to be addressed urgently, if Universal Immunization program and its Multi-Year strategic plan (2005-2010), a part of RCH-2 has to succeed in low performing districts in India.

5. Fear of infertility following OPV: Adequate supervision and monitoring by superiors

Removal of misconceptions is an important step so as to create demand of routine immunization services. In a recent study (Immunization Review, MOHFW 2004), fear of infertility due to OPV was an important obstacle to immunization and fear/rumor of side effects (4%) and fear of getting disease (6%), mostly seen in one particular community as compared to other communities, was an important barrier of immunization. This partly could be removed by improving IEC activities in the community, thus improving IEC activities is a critical step in increasing immunization coverage and this has been rather neglected for many years especially in rural areas in India. Lack of IEC leads to insufficient knowledge about the need of awareness regarding immunization, as observed by (Singh P et al, 2001), in a study of BIMARU states comprising of 6300 children and 30 districts. There is an urgent need to increase IEC activities in the district and providing sufficient knowledge about immunization, especially to illiterate mothers regarding the benefits of immunization. This could be improved by adequate supervision and monitoring by superiors and intensive IEC/BCC are

important interventions for improving immunization coverage

6. Introduction of A-D syringes may be through user charges, if necessary.

One of the Universal Immunization Program constraints mentioned in the (MYSP, MOHFW 2005) was injection safety. An INCLIN study by AIIMS revealed that 73.9% of injections given in immunization program were deemed to be unsafe. To overcome this problem, there is a gradual introduction of AD syringes in India as per the Multi-year Strategic plan (MYSP: 2005-2010, MOHFW 2005). However, the obstacles to this are financial constraints and lack of policy of safe disposal. In a study, (Kuroiwa C et al, 2004) pointed out in Loa PDR, a safe injection policy was essential for immunization success, much similar to conditions which exist in many developing countries today. Further, improperly used and disposed boiled glass syringes would be a source of infection to the community.

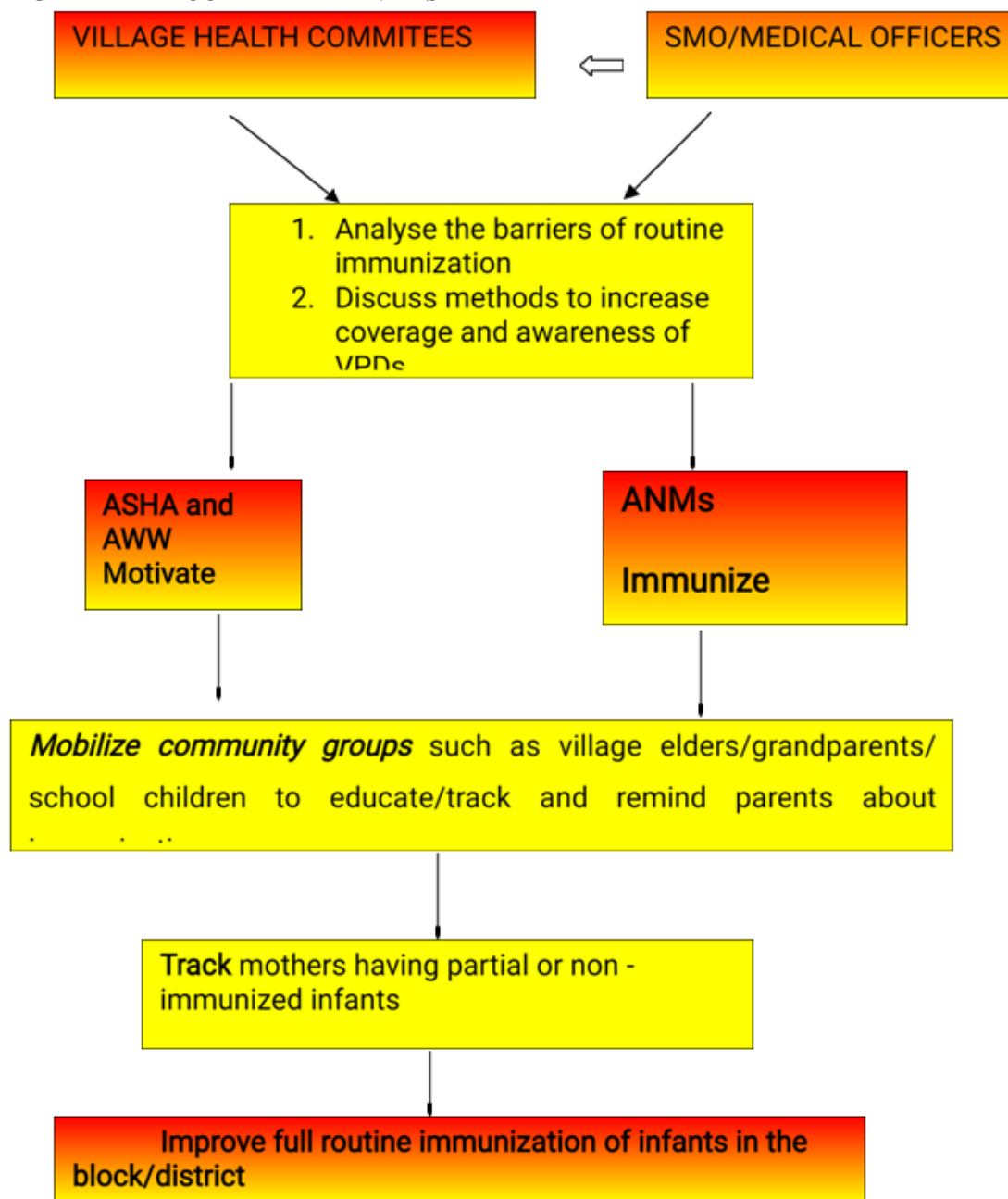
7. ASHA for motivating the community and helping in immunization

National Rural Health Mission (NHRM) was launched by the Hon'ble Prime Minister of India on 12th April 2005, with an objective to provide effective rural health care with a special focus in 18 states, which includes Uttar Pradesh. NHRM is envisaged to be operational through 2.5 lakhs village-based ASHA or Accredited Social health activist (Kapil U, 2005). There is a definite role for the newly created and proposed cadre of ASHA under the National Rural Health Mission for improving immunization services. ASHA have been trained to advise the rural community about sanitation, hygiene, contraception and immunization. A suggested algorithm for increasing immunization coverage through Village Health committees and ASHA is shown in figure 1.

CONCLUSION

Finally, critical recommendations for improving provider barriers for routine immunization, would be to fill vacancies of AWWs/ ANMs, Motivation of AWWs/ANMs : by performance based incentives for good work, supportive supervision and skill building, well defined allotment of tasks for PPI and routine immunization so that both the activities are conducted effectively, Reorientation and improving the skills of male health workers through regular training courses on routine immunization, ANMs or AWWs should counsel mothers about adverse events following immunization (AEFIs) and inform them whom to contact if AEFI developed. The Village Health Committees, could help in increasing skills and identifying and arranging for training of ANMs/AWWs, so as to improve tracking and monitoring of non-immunized and partially immunized children; improve negotiating and communication skills of health workers regarding AEFIs by re-orientation of the training of Health providers.

FIGURE 1: ALGORITHM FOR INCREASING IMMUNIZATION COVERAGE THROUGH VILLAGE HEALTH COMMITTEE AND ASHA



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