

Review

Article

Routine Immunization in India: A perspectiveTaneja G¹, Sagar KS², Mishra S³¹Technical Officer, Immunization and New Born Care, Maternal and Child Health Integrated Program, India, ²Country Representative, Maternal and Child Health Integrated Program, India, ³Ex-State Representative, Jharkhand, Maternal and Child Health Integrated Program, India.**Abstract:**

The Universal Immunization Programme is possibly the longest and one of the biggest public health intervention measures undertaken in India. To improve immunization coverage in the country various initiatives have been undertaken since the inception of the programme in 1985; key inputs being strengthening and expanding the cold chain system, establishing a network of outreach immunization sites, alternate vaccine delivery model, capacity building of health functionaries and medical officers and intensified polio control measures. Introduction of new and underutilized vaccines, drafting of the national vaccine policy, tracking of beneficiaries through the Maternal and Child Tracking system are some of the recent developments. However in spite of more than 25 years since inception the programme is still adversely impacted by challenges across key thematic areas of programme management, cold chain and vaccine management, recording and reporting and injection safety. To further strengthen and improve service delivery 2012-13 has been declared as the "Year of Intensification of Routine Immunization" with the objective of improving immunization coverage rates across poor performing districts and states so as to attain Global Immunization Vision and Strategy goals of 90% coverage at national and more than 80% coverage at district level. Key activities planned during the year include sustained advocacy at all levels, improved communication and social mobilization, robust and regular program reviews, comprehensive microplanning, strengthening cold chain and vaccine logistics system, special catch up rounds through immunization weeks, piloting the teeka express, improved surveillance systems, strengthened partnerships and operational research activities. The current review pertains to the existing scenario of Universal Immunization Program in the country with impetus on the existing challenges, progress achieved till date as a result of various measures and initiatives undertaken and activities lined up as a part of year of intensification of Routine Immunization.

Key words: Immunization, Universal Immunization Program**Introduction:**

Routine Immunization (RI) reflects the functioning of the primary health care system within any country, state, district or the block. The implementation of the RI program is a measure of the access and utilization of health services by the community as a whole and serves as an indicator for the effective implementation of the health system within any geographical locale.

The RI program in India is the largest in the world: in terms of beneficiaries targeted and immunized; the logistics and human resources involved and the geographical spread¹. Since its inception in 1978 as the Expanded Program on Immunization (EPI) the national program has undergone a sea of change which reflects in its present status: key transitions being revamping the program as the Universal Immunization

Program (UIP) in 1985, incorporation into the Child Survival and Safe Motherhood (CSSM) program in 1992, the Reproductive and Child Health Program (RCH-I) in 1997 and RCH II under the National Rural Health Mission (NRHM) in 2005.

Status of RI in India

India has a birth cohort of 27 million infants and 30 million pregnant women¹. Full Immunization coverage stands at 61% with an access gap of 3.5 million (left outs) and a follow up gap of 7.3 million (drop outs)². There are wide interstate variations in coverage: from 87.9% in Goa to 27.8% in Nagaland (Fig 1)² and more profound variations within states with more than 200 out of 545 districts in the country having full immunization coverage of less than 50%³.

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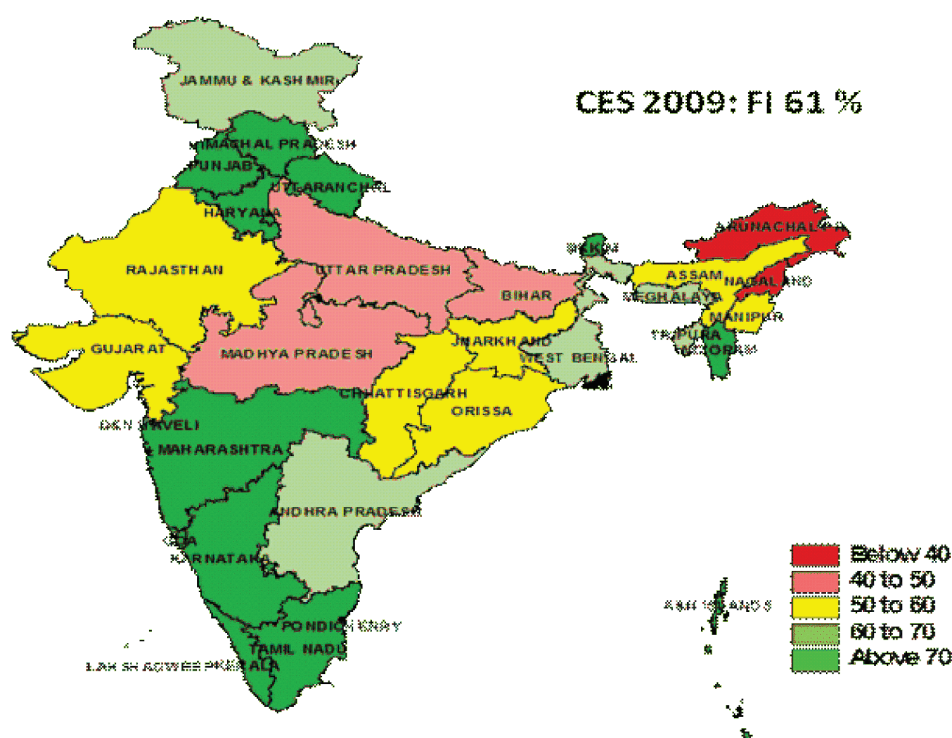


Figure 1: Immunization coverage across various states (CES 2009)

Key challenges facing the country

In spite of more than 25 years of UIP in India; the RI program is plagued with issues at the programmatic and implementation levels. DPT-3 coverage is static at 72% (2010) a minimal rise of 2% age points as compared to 1990 levels, 1 of every 3 unimmunized children in the world is Indian, 60% unimmunized children in the country come from its 4 most populous states and Vaccine Preventable Diseases still account for 0.7 million of the 1.8 million under 5 deaths in the country (4). The limited availability of human resources, inadequate cold chain, vaccines and logistics management system, poor microplanning at implementation level, weak Vaccine Preventable Diseases (VPD) and Adverse Event Following Immunization (AEFI) surveillance systems, lack of effective monitoring and supportive supervision structures, poor waste management systems, limited data on disease burden, absence of economic evaluations highlighting cost effectiveness of vaccines

compromise the functioning of the program in the country (5). India has perhaps the lowest spending on immunization when compared to countries with similar income; \$8.64 dollars is spent on every beneficiary against a requirement of \$46 per beneficiary as envisaged by the Global Immunization Vision and Strategy (GIVS) to achieve Millennium Development Goal (MDG) 4 (4).

Progress till date

Keeping in view the above issues RI is a focussed and priority programme both at the national and the state levels. Down the years Government of India along with Development Partners (DPs) has undertaken and initiated various measures to improve the functioning and service delivery of the program in the country.

Intensified polio control measures which started in 1995 as the first National Immunization Day (NID) culminating in India being polio free for more than one year as on January 2012 and being removed from the list of endemic countries by the World Health Organization

(WHO), is probably the lead example of the continued commitment of the National and State Governments towards UIP. Post small pox eradication this is perhaps the greatest public health achievement in the country. The success of the polio program in India is reflected in the words of Dr. Margaret Chan, Director General, WHO at the 65th World Health Assembly at Geneva on 21st May 2012 *"Ladies and gentlemen, time and time again, we see the importance of national ownership and leadership. India would never have been able to dramatically change the prospects for polio eradication without full government ownership of the programme. The Government of India deserves our congratulations for this monumental achievement"*⁶.

The country focussed on building a platform for RI services during the early years of UIP. Prime importance was on strengthening and institutionalizing the program within the health infrastructure of the country. Capacity building and expanding the scope of the program were undertaken. A high impact input was building up of the cold chain management structure in the country and converting to Chloro Fluoro Carbon (CFC) free cold chain equipments. Promoting outreach immunization services by making the Anganwadi Center (AWC) as the functional service delivery point, initiating and developing the Alternate Vaccine Delivery (AVD) system, community mobilization through Accredited Social Health Activist (ASHA) and Information Education and Communication (IEC) and Interpersonal Communication (IPC) campaigns were other key interventions. Besides this Village Health and Nutrition Days (VHNDs), providing a comprehensive package of health and nutrition services evolved through the process of conducting immunization sessions at outreach session sites.

In the recent years the scope of the program has widened: new and underutilized vaccines have been added to the National Immunization Schedule (NIS): Hepatitis B vaccine is now being administered to beneficiaries across the country, second dose of Measles Containing Vaccine (MCV-2) has been added to routine immunization in 21 states and will be initiated following completion of the Measles Supplementary Immunization Activity (SIA) campaign in the 14 remaining states⁷. Till date of the 14 states marked out for the Measles Catch Up Campaigns, 7 have completed the activity, 5 have completed phase II of the campaign whereas in 2 states the phase II activity is ongoing⁸. In addition Japanese Encephalitis (JE) vaccine is

administered in 111 districts across 15 states⁹ and the Pentavalent Vaccine providing protection against Diphtheria, Pertussis, Tetanus, Hepatitis B and Hemophilus influenzae type B has been started in the states of Kerala and Tamil Nadu from December 2011. Till April 30, 2012, a total of 731,000 children had been vaccinated with the Pentavalent Vaccine, 528,000 children in Tamil Nadu, and 203,000 children in Kerala⁶. Another major step is the framing of the National Vaccine Policy to address the broad issues of strengthening the institutional framework, processes, evidence base and framework required for decision making for new vaccine introduction. The policy addresses vaccine-security & program management, regulatory issues and product development¹. A major initiative to strengthen AEFI surveillance in the country is the participation in the global post-marketing surveillance network for reporting AEFI associated with new vaccines with Maharashtra as the participating state.

Beneficiary tracking to ensure full immunization has been prioritized and the development of the Mother and Child Tracking System (MCTS) is a major boost. The system allows for automated generation of due lists thereby minimizing drop outs within the target area.

To strengthen cold chain management in the country Government of India in collaboration with United Nations' Children Fund (UNICEF) is developing a National Cold Chain Management Information System to provide online status of cold chain equipments across all the cold chain points in the country. The web portal will provide information on the number, make, functioning of equipments at cold chain points and the sickness rates. In addition various guidelines and technical issues related to cold chain system in the country will be accessible on the portal¹⁰.

Year of Intensification of Routine Immunization

2012-13 has been declared as the year of intensification of Routine Immunization (IRI) by all the countries of the South East Asia Region (SEAR). In accordance with this Government of India has decided to further strengthen UIP in the country through measures targeted at high priority states and districts in the country with the primary objective of improving the full immunization coverage in all the districts in the country. Strategies being employed under IRI include¹¹:

- Enhanced political commitment and increased community demand for routine immunization
- Improved reach and quality of Immunization Services.
- Strengthened institutional capacity for program management

- Strengthen partnership with all stakeholders
 - Conduct Operational research
- Under this initiative various activities have been planned at the national, state, district and block levels¹¹:

National and State level advocacy: Enhanced and continued political commitment with decision makers to generate a positive mandate for RI in the country. Following actions have been undertaken for effective coordination:

- o National level advocacy meeting for health ministers and secretaries of states to proclaim 2012-13 as the "Year of Intensification of RI".
- o State and District level Task force have been established to guide and monitor the program by promoting Intersectoral coordination.
- o State level launch of the Year of IRI.

Strengthening communication and social mobilization: A national level communication plan has been drafted with states and districts being encouraged to draft communication plans tailor made for their requirements. This plan will focus upon components and strategies for addressing the issues related to left outs, drop outs, and increasing community participation in immunization. The communication plan will envisage greater involvement of participating institutions like Integrated Child Development Services (ICDS), Education, Panchayati Raj Institutions (PRIs), professional bodies and self help groups.

Regular program reviews at all levels: Comprehensive reviews will be conducted across good, average and poor performing states to improve gaps and suggest action points for improved service delivery. Quarterly review meetings at the national and state level and monthly meetings at the district and block levels will be conducted to facilitate continuous monitoring of the program.

Development of Coverage Improvement Plans: Risk analysis to identify poor performing pockets and prioritizing high risk blocks will be undertaken. Rapid Response Teams (RRTs) formed under Epidemic Preparedness and Response Plan (EPRP) will identify low coverage pockets within good performing districts. In addition microplans will be updated with inputs from the polio and measles SIA campaigns.

Institutional Capacity Building: Program management will be strengthened at national and state level in key areas of planning, monitoring, surveillance, cold chain and logistics management and

communication. Subcenters with two Auxillary Nurse Midwife (ANMs) will have their work redistributed with clarity in their roles and responsibilities. In addition capacity building of the medical officers, supervisors, ANMs and cold chain handlers will be expedited.

Vaccine and logistics management: Institutional mechanisms to strengthen vaccine management to streamline vaccine supply and usage will be initiated. Scaling up of successful models as Procurement Management Information System (PROMIS), Tamil Nadu Medical Services Corporation (TNMSC) and Orissa Vaccine Logistics Management System (OVLMS) will be explored.

Cold chain strengthening and maintenance: Effective Vaccine Management (EVM) exercise will be conducted in all priority states to assess and strengthen cold chain and vaccine management system. Need based procurement and installation of cold chain equipment (electrical and nonelectrical) will be undertaken.

Teeka Express: Teeka express a four wheeler mobile service delivery mechanism is to provide services to underserved populations, tribal, hard to reach areas, urban and peri-urban areas and migrant population. This will also serve to brand immunization services and improve visibility of immunization programme. The Teeka Express van will be provided in select districts to be used for vaccine delivery to outreach sessions; for visits to hard to reach areas and to conduct mobile clinics. It will be piloted in 50 districts during 2012-13 in districts/blocks where the immunization coverage is low, AVD is not functioning, backward area where it is difficult to get a vehicle on hire and roads are motorable.

Immunization Weeks: Immunization weeks will be undertaken in low performing districts (with less than 50% full immunization coverage as per DLHS-III) over 4 rounds to improve the coverage of various antigens. Focussed efforts will be undertaken to improve coverage in the urban slums and peri -urban areas, areas with irregular sessions and those reporting low coverage in spite of regular sessions. A decentralized approach will be undertaken with districts and states drawing their respective microplans for immunization weeks.

Strengthening RI monitoring and supervision: Supportive supervision will be strengthened at state, district and sub district levels. Data collected from various sources like RI monitoring, HMIS reporting, surveillance data and coverage surveys will be compiled and analyzed for taking appropriate remedial measures at

all levels. Data from Routine Immunization Monitoring System (RIMS), Health Management Information System (HMIS) and MCTS will be triangulated and converged to promote effective data management. In addition the capacity of the data managers will be built to operate and manage these systems and provide information to program managers for appropriate action.

Institutionalizing AEFI and VPD surveillance:

National AEFI secretariat is to be established at the Ministry of Health and Family Welfare (MoHFW), Government of India will monitor operations of AEFI surveillance system and provide support to states for investigation, causality assessment and feedback. Post marketing surveillance will be expanded to states other than Maharashtra and members of AEFI committees at all levels will be trained in causality assessment. In addition nationwide surveillance system for VPD will be set up to build an effective surveillance system.

Strengthening partnership with all stakeholders:

All available stakeholders will be involved for efficient implementation and strengthening the program in the country.

Operational Research studies: Operational research studies have been planned during 2012-13 in the areas of evaluation of Medical Officers (MO) training in immunization; cold chain assessments; studies on vaccine freezing and injection safety.

Immunization is stated to be the most cost effective public health intervention; for every rupee spent on vaccines saves more than 7 times the medical costs and 25 times the overall costs related to VPDs¹². Apart from this RI is also believed to directly influence fertility rates: for every 100 first born exposed to UIP 34 less children are born and improving immunization coverage will also decrease the Under 5 mortality rates to MDG 4 levels by 2015⁴.

Intensifying the program is a welcome measure and undertaking these steps in a coordinated and streamlined manner by the Government will definitely yield desired results to achieve GIVS goals of 90% immunization coverage at the national and more than 80% at the district level with strengthened health systems, access to quality vaccines, introduction of new vaccines and optimal sustainability of the entire program¹³.

References:

1. Ministry of Health and Family Welfare. National Vaccine Policy. Government of India; April 2011.
2. UNICEF Coverage Evaluation Survey, 2009 National Fact Sheet.
3. International Institute for Population Sciences (IIPS), 2010. District Level Household and Facility Survey (DLHS-3), 2007-08: India: Key Indicators: States and Districts, Mumbai: IIPS. Available from: http://www.rchiips.org/pdf/DLHS-3_KI.pdf. Accessed on: 05/06/12.
4. Immunization Technical Support Unit. Ministry of Health and Family Welfare. Vaccinating India's 27 Million Newborns: Status, Challenges and Options (Draft presentation). Government of India; May 2012.
5. Department of Family Welfare, Ministry of Health and Family Welfare. Multi Year Strategic Plan 2005-2010: Universal Immunization Programme. Government of India; January 2005. Available from: http://www.whoindia.org/LinkFiles/Routine_Immunization_MYP_PDF_%28o5_July_05%29_Final.pdf. Accessed on: 05/06/12.
6. 65th World Health Assembly. Address by Dr Margaret Chan, Director-General, to the Sixty-fifth World Health Assembly. World Health Organization; May 21, 2012. Available from: http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_3-en.pdf. Accessed on: 05/06/12.
7. Ministry of Health and Family Welfare. Measles Catch-up Immunization Campaign: Guidelines for Planning and Implementation. Government of India; June 2010.
8. Immunization Division, Ministry of Health and Family Welfare. 2012 Year of Intensification of Routine Immunization: Catch up – An Update of the India Immunization Programme. Government of India; May 2012.
9. Vashishtha V.M. Status of Immunization and Need for Intensification of Routine Immunization in India. *Indian Pediatr.* 2012; 49: 357-61.
10. National Cold Chain Management Information System. <http://nccvmtc.org/>
11. Immunization Division, Ministry of Health and Family Welfare. Strategic framework for intensification of Routine Immunization in India. Coverage Improvement Plans for 2012-13. Government of India (2012).
12. Commissioner Family Welfare, Government of Andhra Pradesh. Protecting children for a healthy tomorrow. Lessons from the Andhra Pradesh Partnership Project on immunization. Program for Appropriate Technology in Health (PATH); 2006.
13. Global Immunization Vision and Strategy 2006-2015. Available from: http://www.who.int/vaccines-documents/DocsPDF05/GIVS_Final_EN.pdf. Accessed on 05/06/12.