

REVIEW ARTICLE

Coverage Evaluation of Intensified Mission Indradhanush of last 5 years – A Systemic review

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ABSTRACT

The Government of India launched Intensified Mission Indradhanush (IMI) to strengthen the routine immunization. To achieve more than 90% full immunization (FI) coverage IMI was launched on 25th December 2014. Study was conducted to evaluate universal immunization coverage, barriers encountered in achieving the target and solving problems in removing the barriers. PubMed and Google scholar were used for systemic review. PRISMA tool was used for the review process and for inclusion of potential articles. The studies conducted in Madhya Pradesh and south Kerala reported successful achievement of MI goal. The minimum FI percentage was 76.4% and the maximum was 96.4%. The most common reason for not achievement of the goal was lack of awareness, child illness and fear of adverse event following immunization (AEFI).

Keywords: MI, Evaluation, Awareness

Introduction

India's Universal Immunization Program (UIP), launched in 1985, was one of the largest programs. The program provided vaccination against eleven life-threatening diseases (Pneumonia, Diarrhea, Diphtheria, Pertussis, *Haemophilus influenzae* type B (Hib), tetanus, polio, tuberculosis, measles, Rubella and hepatitis-B) in the entire country.¹ After the introduction of the UIP there had been steady fall of infant mortality from 80 per 1000 live births in 1991 to 28 per 1000 live births in 2022 (SRS).²

According to NFHS-4, the full immunization cover age in age group of 12-23 months old children was 62% which has increased to 76% in NFHS-5.³ On 25th December 2014 union health minister Mr. J.P. Nadda has inaugurated Mission Indradhanush with an objective to achieve more than 90% Full Immunization coverage in the country.⁴ According to routine immunization monitoring data and MI data, it had been estimated that yearly more than 7 million children did not receive all vaccines that were available under the UIP.

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Analyzing the coverage trend and progress, an intensified MI was launched by the honorable prime minister in 2018 to increase vaccination cover age and reach the target of 95% FIC and meet current gaps.^{4,5}

The purpose of this review is to examine literature on IMI and to understand evaluation of universal immunization coverage, barriers encountered for not achieving target and problem solving in removing barriers.

Methods

This paper is based on the literature review of articles focused on IMI. PubMed and other database were used to search the relevant articles. Process included assessment of literature using specific key words such as IMI, assessment, awareness, and knowledge.

Study selection: The study selection was done by using the PRISMA (preferred reporting items for the systematic review and Meta analysis). The studies conducted within last five years related to know awareness of IMI, to assess knowledge of care giver regarding immunization schedule. The studies were screened using their titles and abstracts then, the included studies were further thoroughly reviewed to select the potential articles.

Results

Total 7 studies were reviewed. Most of the participants included in study belonged to the age group of 12-23 months. Out of 7 studies the minimum sample size was 100, considered in the studies conducted in Rudraprayag, Uttarakhand, maximum sample size was 643 considered in southern India. Highest Full Immunization coverage was reported from south Kerala (96.4%) and lowest from Ahmedabad Gujarat (74.6%) (**Table-1**).

Table-1: Immunization coverage status of various states

Name of Author	Title	Year of Pub	Type of Study	Sample size	Age (mth)	State	F1	P1	NI	Achieved / Not Achieved
Algotar et al ⁸	Coverage evaluation of MI immunization programme in urban & rural communities of Ahmedabad District of Gujarat	2019	Cross sectional study	126	12-23	Gujarat	74.5	15.18	9.52	Not Achieved
Jain et al ¹¹	A study on MI programme under reproductive and child health among rural population of Tikamgarh district of Madhya Pradesh	2018	Descriptive study	204	00-24	Madhya Pradesh	91.2	8.8	NA*	Achieved
Francis et al ¹²	Vaccination coverage and factor associated with routine childhood vaccination uptake in rural Vellore, southern India 2017	2019	Cross sectional study	643	12-23	Southern India (Rural Vellore)	84	NA*	NA*	Not achieved
Navaneeth et al ¹⁵	Knowledge and perception regarding immunization among mothers of under five children: a community study from south Kerala	2020	Cross sectional study	140	>5 yrs	South Kerala	96.4	3.6	NA*	Achieved

Contd.. Table-1

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Name of Author	Title	Year of Pub	Type of Study	Sample size	Age (mth)	State	F1	P1	NI	Achieved / Not Achieved
Singh et al ¹⁶	Awareness attitude and utilization of universal immunization program with reference to MI Rudraprayag Town	2020	Cross sectional study	100	12-23	Uttarakhand	76	22	2	Not achieved
Patidhar et al ¹⁸	A cross sectional study to assess the awareness and satisfaction level among beneficiaries regarding MI in selected district of Indore division	2019	Cross sectional study	207	NA*	Indore	NA*	NA*	NA*	NA*
Kaur et al ¹⁹	Perceived barrier of child immunization among mothers of under five children in urban slum of Ludhiana city	2019	Descriptive study	200 mother	NA*	Ludhiana (Urban Slum)	NA*	NA*	NA*	NA*

Coverage status for individual antigen for different states

Out of 7 studies reviewed, individual vaccination coverage status was given in 2 studies. Vellore has the highest BCG coverage (95.5%) followed by Gujarat Ahmedabad (85.7%). The coverage of Penta (1, 2 and 3) and OPV (1, 2 and 3) was found highest in Vellore (94%). Vellore has reported highest measles coverage (85.3%) followed by Gujarat (Ahmedabad) (74.6%) (Table- 2).

Table-2: Coverage status for individual vaccine for different states.

States	BCG	PENTA (1, 2, 3)	PCV (1, 2, 3)	OPV (1, 2, 3)	Rota Virus	Measles (1dose)
	%	%	%	%	%	%
Gujarat (Ahmedabad)	85.71	73.96	NA*	70.00	---	74.65
Southern India (Vellore)	93.50	94.05		94.05	---	85.30

*NA indicates not available; Reason for partial/ no immunization

Most common reason for partial and NI was lack of awareness (69.23%) followed by illiteracy, child is sick, fear of adverse events (30.76%) each, no one at home (23.07%), unavailability of vaccines, (15.38%) (Table-3).

Table- 3: Reason for partial and no immunization (n=13).

Barriers	No.	%
Lack of awareness	9	69.23
Illiteracy	4	30.76
Child sick	4	30.76
Fear of adverse events	4	30.76
No one at home	3	23.07
Unavailability of vaccines	2	15.38

Solutions to overcome barriers

Most of the studies suggested that educating parents/guardians (58.33%) regarding importance of immunization, its benefits (33.33%) studies focused on strengthening IEC services. Few studies suggested that measures should be taken to increase mobilization of ASHA (accredited social health activist) workers (25%). (16.66%) studies concluded that education to field workers about correct vaccination schedule (Table-4).

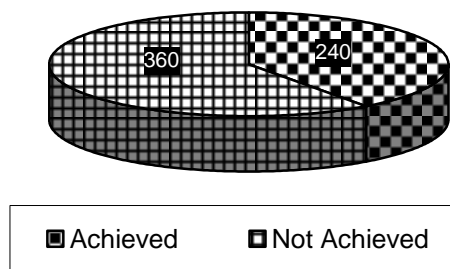
Table-4: Solution to overcome the barriers (n=12).

Solutions	No.	%
Health education	7	58.33
Strengthening IEC	4	33.33
Mobilization by ASHA worker	3	25.00
Education to Field health worker	2	16.66

MI coverage status

Out of 7 studies, 5 studies in which FI was reported were considered to assess the MI coverage status. Studies conducted in Madhya Pradesh and South Kerala reported successful achievement of 90% immunization coverage (Figure-2).

Figure-2: MI coverage status (n=6)



Discussion

The national family health survey (NFHS-5) conducted during 2019-21, contains key indicators that reflects the country’s present status. The key indicators include infant and child vaccination and Vitamin A Supplementation, infant and child mortality rates, delivery care, child feeding practices, nutritional status and many more.²³ As per the analysis of NFHS-5, infant mortality rate (IMR) has reduced from 41 to 35 per thousand live births and reduction has been seen in under-5-mortality rate from 50 to 42 per thousand live births. At the national level, the percentage of children aged 12-23 months who were fully immunized (one dose of BCG, three doses of diphtheria, pertussis, and tetanus (DPT) containing vaccine, and one dose of measles containing vaccine) increased by 14% points from 62% in 2015-16 to 76% in 2019-21.²⁴

All the seven studies reviewed for the evaluation of universal immunization coverage concluded that two states have achieved the MI goal that was Madhya Pradesh (91.2%), and South Kerala (96.40%). Some have achieved more than 80% immunization coverage such as Vellore (84%).^{8, 11, 12, 15, 16, 18, 19}

Most common reason reported for partial and no immunization includes lack of awareness, illiteracy, child sickness, fear of AEFI, no one at home. A study conducted in Madhya Pradesh showed that more than 90% of the children were completely immunized which was 69% before the implementation of MI programme. Other than the most

common reasons, study also focused on various other factors such as myths about vaccination like impotency, disease and death, and migration of villagers as a responsible factor for not availing 100% immunization.¹³

A study conducted in South India (Vellore) mentioned that lost vaccination card on due date and unavailability of mobilizers/ field level workers to record the date of immunization at the immunization site were some reasons for partial or unvaccinated child.¹⁵

Many studies showed that certain common solutions to remove barriers in achieving full immunization coverage such as promoting health education, strengthening IEC related to MI program, active involvement of ASHA worker in mobilization at immunization session site and education to health workers.

A descriptive study conducted at Ludhiana urban slum showed that only 0.5% mothers had good knowledge regarding immunization,¹⁹ on contrary across sectional study conducted in South Kerala found that 48% of mothers had good knowledge.¹⁸ Furthermore, across-sectional study conducted in Madhya Pradesh (Indore) revealed, 88% care givers were aware about immunization.¹³

Strengths and Limitations

The review has provided summary statistics of intensified mission Indradhanush in last 5 years. Information related to number of immunization session planned and held under the program, cold chain and logistics management were not included due to unavailability of the information in the selected articles.

Conclusion

The most common factors for not achievement of full immunization coverage in MI was lack of information, education, Sick child and fear of AEFI. Further research studies could be conducted to evaluate health system readiness for MI. This would be helpful in identifying the bottlenecks in implementation of the program and formulation of strategies to overcome it.

Ethical approval : Not required

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