

ASSESSMENT OF PRIMARY IMMUNIZATION STATUS OF CHILDREN IN TERTIARY CARE HOSPITALS

¹Dr Apurva Ashok Binjawadgi, ²Dr SharanKumar Deshmukh, ³Dr Komal M Halkai
⁴Dr Divya S Namoshi

¹Associate Professor, Dept. of Pediatrics, MR Medical College

²Assistant Professor, Dept. of Pediatrics, MR Medical College

²Assistant Professor, Dept. of Pharmacology, MR Medical College

⁴Assistant Professor, Dept. of radiology Kle JGMM Medical College, Huballi

Corresponding Author: Dr Divya S Namoshi

Article History: Received: 08.03.2023 Revised: 19.03.2023 Accepted: 10.04.2023

Abstract

Background: Estimates suggest that approximately 34 million children are not completely immunized, with almost 98% of them residing in developing countries. The present study is undertaken to assess the status of immunization and to analyze the various factors like the knowledge, attitude and practices responsible for the suboptimal coverage of immunization.

Materials and Methods: All the children in age group between 12 to 60 completed months admitted in Pediatric ward in Basaveshwar Teaching and Sangmeshwar Teaching and General Hospitals attached to M R Medical College, Gulbarga, between December 2010 to May 2012. Analysis of a study conducted by Saxena et al. ⁽¹⁾ shows the primary immunization coverage 30%. Now using the formula,

Results: Out of the 1000 children studied, 685 were fully immunized (68.53%), 189 were partially immunized (18.93%) i.e. the child has received at least one of the immunizations mentioned in the UIP and 125 of them were non-immunized (12.53%) i.e., they had not received even a single immunization.

Conclusion: This study was done to know the knowledge, attitude and practices towards immunization of parents of children admitted to tertiary care hospitals attached to Mahadevappa Rampure Medical College, Gulbarga. Our study included 1000 children in the age of 12 to 60 completed months.

Keywords: Immunization, Children, Vaccines

Introduction

The Indian population has swollen to 1,049million⁽²⁾, which has led to crucial changes in the balance between young and old, rich and poor, urban and rural. India is the 2nd most populous country in the world with 3/4ths of our population coming from a rural background with poor economic status and illiteracy. Children below 5 years constitute 12-15% of the population. Because of such large population the number of diseases is also on the rise and most of such diseases can be prevented. The Government of India keeping this in mind has made it mandatory for all children to be immunized against 6 killer diseases. In May 1974 WHO officially launched Expanded Programme on Immunization (EPI) to protect all children of the world against 6 vaccine preventable diseases namely Diphtheria, Whooping cough, Tetanus, Polio, Tuberculosis and Measles by the year 2000. In India EPI was launched in January 1978⁽³⁾. Prior to 1978 there were no provisions made for immunizations under any of the Government programme. The success of eradication of small pox backed by WHO made the Government and other associated bodies take notice about the importance of immunizations and hence in the V five year plan (1975-80), it introduced immunizations as a priority under

MCH services. In a declaration sponsored by the UNICEF, as part of the United Nation's 40th anniversary in Oct 1985, launched a programme called Universal Child Immunization, which aimed to add impetus to the global programme of EPI. In India Universal Immunization Programme (UIP) was launched on Nov 19th 1985 and was dedicated to Late Smt. Indira Gandhi. The National Health Policy aimed at achieving universal immunization coverage of the eligible population by 1990⁽⁴⁾. A national demographic goal was set up in the national population policy 2000 to achieve universal immunization of children against all vaccine preventable diseases of childhood by 2010⁽⁵⁾. The achievements in Xth five year plan were that they brought down IMR from 146 to 70⁽⁶⁾, which was mainly due to immunizations.

Materials and methods

Study Design:

This study is a hospital based study done in both the hospitals attached to Mahadevappa Rampure Medical College, Gulbarga.

Source of Data:

All the children in the age group between 12-60 completed months admitted in Pediatric ward in Basaveshwar and Sangmeshwar Teaching and General Hospitals attached to Mahadevappa Rampure Medical College, Gulbarga.

Method of collection of data:

All the children in age group between 12 to 60 completed months admitted in Pediatric ward in Basaveshwar and Sangmeshwar Teaching and General Hospitals attached to Mahadevappa Rampure Medical college, Gulbarga, between December 2010 to May 2012.

- Analysis of a study conducted by Saxena et al. ⁽¹⁾ shows the primary immunization coverage 30%. Now using the formula,
- Sample size = $4pq / L^2$
- p – Probability of occurrence = 30
- q - Probability of non-occurrence = 70
- L – 10% of p = $10/100 \times 30 = 3$
- Sample size = $4 \times 30 \times 70 / 3 \times 3 = 933$.
- Hence the sample is approximately 1000.
- Pre-tested proformas were used to fulfil the objectives. An oral questionnaire method was adopted for family informants having children in the age group of 12 to 60 months to assess their immunization status and social factors influencing primary immunization coverage.

Inclusion Criteria

1. Children between 12-60 completed months admitted in Pediatric ward, in the hospital.

BCG scar: Parents who did not have an immunization card we used the BCG scar for evaluation of whether BCG was given. For DPT and Measles, we enquired the month when the child was last immunized. Site of injection also gave us an accurate data.

Socio Economic Status:

Socio economic status was calculated using modified Kuppaswamy's classification⁽¹⁷⁾

Immunization status:

- Fully Immunized: The child has received all the doses against 6 killer diseases in one year i.e. BCG, DPT/OPV I, II, III and Measles at the right time as mentioned in the immunization schedule.
- Partially Immunized: If the child has missed even a single dose mentioned in the immunization schedule
- Non Immunized: The child has not received even a single dose of any vaccine or who has taken only OPV.

Results and Discussion

Table I: Distribution of Children Based on their Age and Sex

age	Male		female		Total	
	No.	%	No.	%	No.	%
12---23	209	57.93	152	42.07	360	100
24---36	174	50.74	169	49.26	343	100
37---48	106	59.31	73	40.69	179	100
49---60	55	46.59	63	53.41	117	100
Total	544	54.39	456	45.61	1000	100

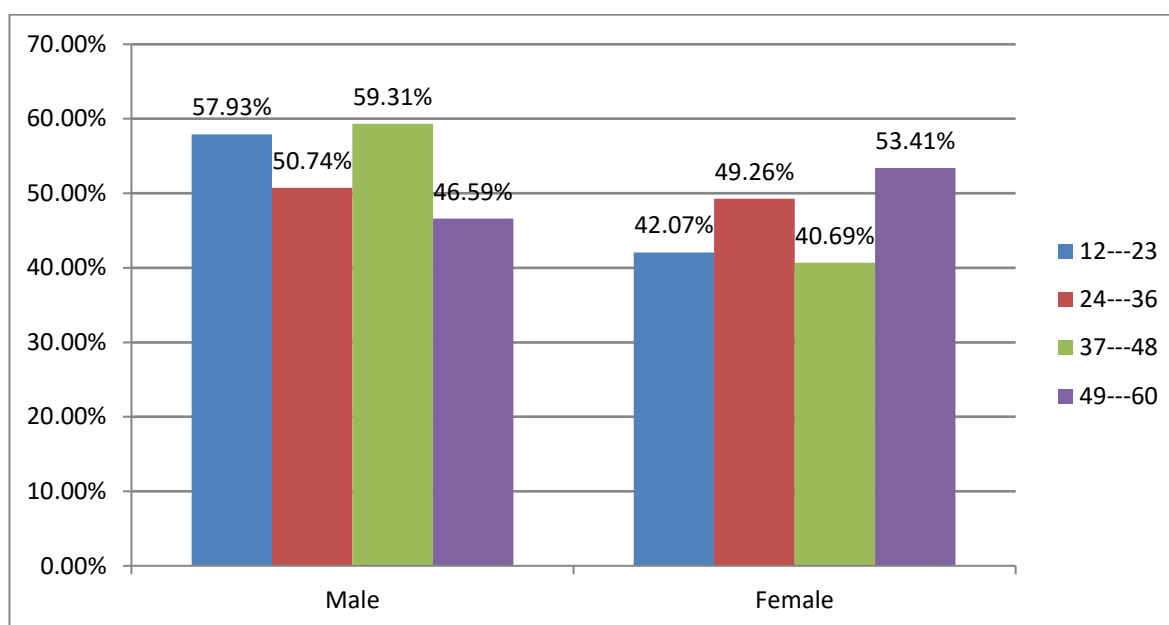


Table I shows that the children included in our study group comprised of 544 males (54.39%) and 456 females (45.61%). Age wise distribution had an almost equal number of children in all age groups. The highest numbers of children were in the age group of 12-23 months i.e. 360 children (36%) and the lowest were in the age group 49-60 months i.e. 117 children (11.7%).

Table II: Distribution of Children Based on Domicile

DOMICILE	No.	%
URBAN	449	44.93
RURAL	551	55.07
Total	1000	100

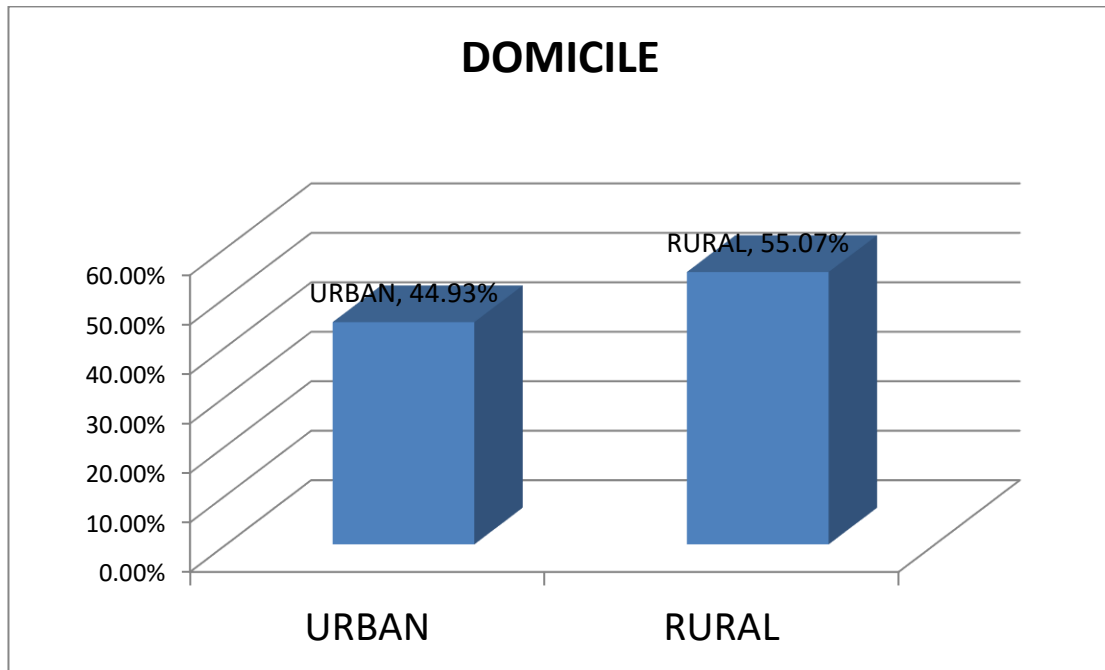


Table II shows that 551 children were from rural areas (55.1%) and 449 of the children were from urban area (44.9%), giving us a distribution of children on the basis of domicile in the ratio 1.2:1.

Table III: Distribution of Informants of Children

INFORMANTS	No.	%
MOTHER	991	99.06
FATHER	9	0.93
Total	1000	100

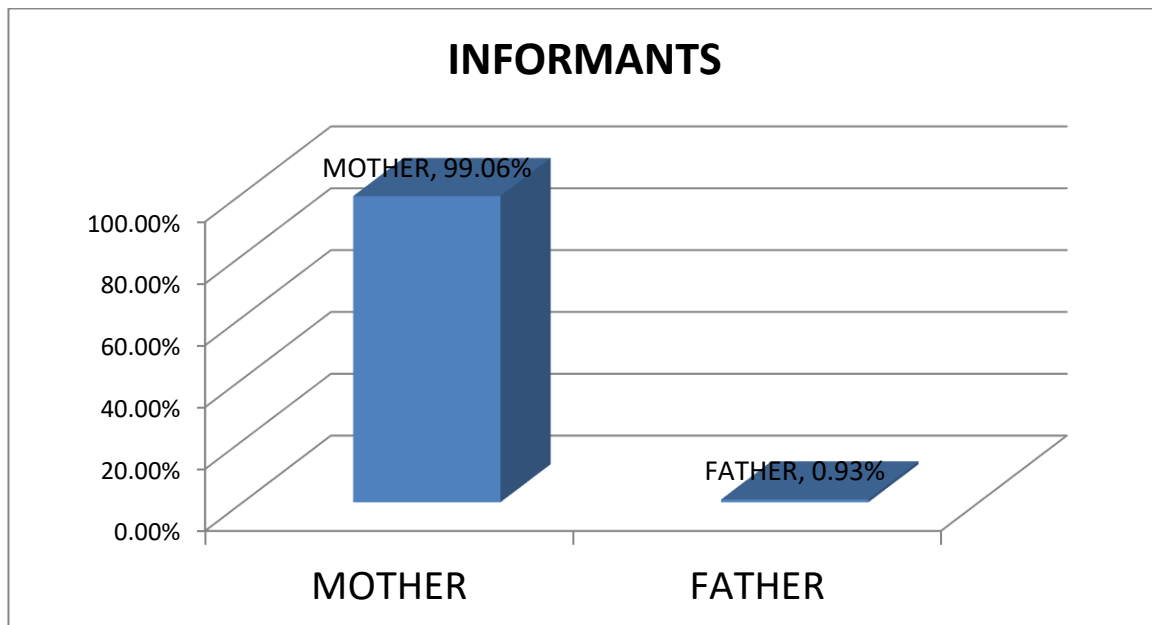


Table III shows 991 of the informants were mothers (99.1%) and were fathers (1%). This points to the authenticity of the information. All sources were close blood relatives. Moreover, it also shows that in 90.67% of the times the parents themselves take interest in their children for immunization.

Table IV: Distribution of Children Based on their Religion

Religion	No.	%
----------	-----	---

HINDU	813	81.33
MUSLIM	183	18.27
CHRISTIAN	3	0.27
OTHERS	1	0.13
Total	1000	100

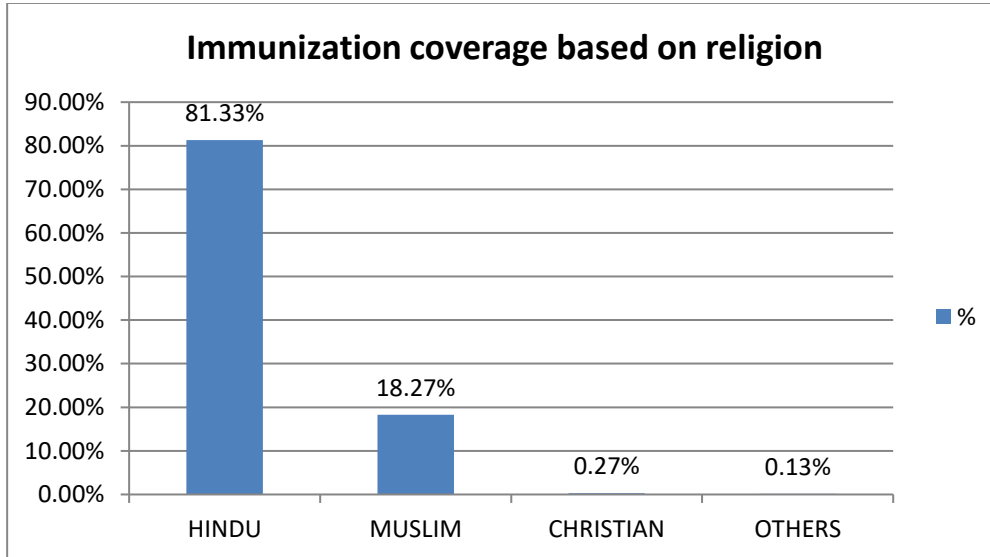


Table IV shows the distribution of children on the basis of religion. 813 of the children in our study were Hindus (81.33%), 183 of them were Muslims (18.27%) and 3 of them were Christians (0.27%).

Table V: Distribution of Children Based on their Status of Immunization

STATUS OF IMMUNIZATION	No.	%
Fully Immunized(FI)	685	68.53
Partially Immunized(PI)	189	18.93
Not Immunized(NI)	125	12.53
Total	1000	100

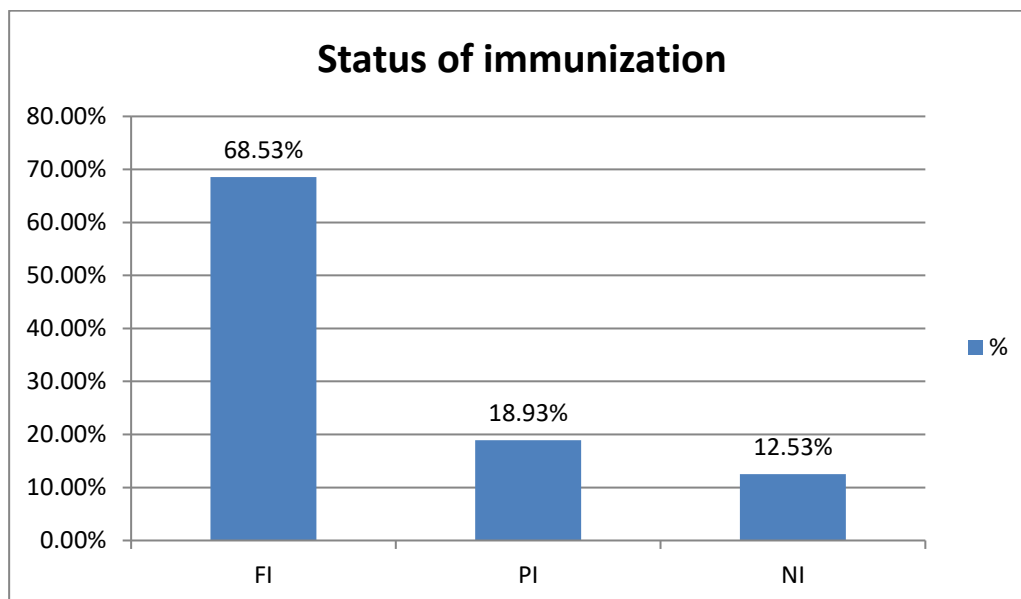


Table V portrays that of the 1000 children studied, 685 were fully immunized (68.53%), 189 were partially immunized (18.93%) i.e. the child has received at least one of the immunizations

mentioned in the UIP and 125 of them were non-immunized (12.53%) i.e., they had not received even a single immunization.

A study conducted at department of Community Medicine, Govt. Medical College, Chandigarh, India recorded fully immunized children as 72.23%, partially immunized as 22.99% and unimmunized as 4.64%. Only 58.66% children in urban slums were fully immunized. The overall coverage for various vaccines was BCG: 93.09%, DPT1/OPV1: 93.97%, DPT2/OPV2: 90.57%, DPT3/OPV3: 85.92% and measles: 76%. No sex-wise difference was noticed in the study.⁷ Study conducted at Advanced Center for Clinical Epidemiological Research and Training (ACCERT), Madras Medical College showed that (71%), (20.2%) and (8.8%) children were immunized, partially immunized and unimmunized, respectively. 21% among parents of children, in the unimmunized group were unaware of the need for immunization. The other reasons are minor illnesses, lack of interest, fear of side reaction, non-availability of vaccine or vaccinator. The decision to withhold immunization was mostly by parents when the child had some minor illnesses, mostly respiratory infections.⁸ Another study in the Department of Paediatrics, Maulana Azad Medical College, LokNayak Hospital, New Delhi, India, showed 25% were found to have received complete primary immunization as per the National Immunization Schedule. Major reasons for non-immunization of the children were: migration to a native village (26.4%); domestic problems (9.6%); the immunization center was located too far from their home (9.6%); and the child was unwell when the vaccination was due (9%). Twelve per cent of mothers could not give any reason for non-immunization.⁹ A study at Medical Center, Birla Institute of Technology and Science (BITS), Pilani says among the 12-24 month old children 50% fully, 31.3% partially and 18.7% not at all immunized. High levels of initial vaccination rates and low levels of OPV3/DPT3 (62.7%) and measles (51.8%) vaccines indicate that completing vaccination schedule needs attention. Obstacles, misconceptions/beliefs among the mothers of partially immunized children and lack of information among not at all immunized group were the main reasons of non-immunization.¹⁰ In Vardha district, Singh M.C, et al, studied the immunization coverage and the KAP of mothers regarding the immunization of mothers in rural areas 52.5 % of the children were fully immunized and 45.1 % were partially immunized¹¹ A study by Taylor J A et al in Seattle USA, showed 81.7% of the children surveyed were fully immunized and stated that Individual provider behavior may be the most important determinant of the immunization status of children followed by private Pediatricians.¹² A study at University of Pennsylvania by Bell M et al stated Immunization records were verified in 86% and 49% study patients were fully immunized at the time of admission and 70% on discharge and that the development of an immunization program to vaccinate hospitalized preschool children is an opportunity to immunize in the urban setting where there is a high prevalence of under immunization.¹³ A MaliniKar, et al., in their study titled "Primary Immunization Status of children in Slum Areas of South Delhi - The Challenge of Reaching the Urban Poor" found that 69.3% of the children were fully immunized with BCG, DPT3, OPV3 and measles; 15.7% were partially immunized and 15.1% were non-immunized. The major cause of incomplete immunization was postponement of immunization due to the illness of the child whereas mother's lack of information about place, schedule and eligible age of immunization constituted the main reasons for non-immunization.¹⁴ Sokhey .J. et al, conducted a vaccination coverage survey in East Delhi in September 1999, which showed that only 58.6 % of the children aged 12-23 months had received the full course of vaccines recommended under the National Immunization Programme. 9 % of the children had not received a single dose of any vaccine. The main reason for failure to immunize was lack of information.¹⁵ Bhandari B. used cluster sampling methodology based on WHO module to "Evaluate Vaccination Coverage", recommended by Ministry of Health and Family Welfare,

Government of India. They found out of 250 eligible children between 12-23 months of age 44.65, 38.61 and 16.74 % were found to be fully, partially and un-immunized respectively.¹⁶ Chandra.R, et al, studied an impact of Urban Basic Services on immunization coverage in slum areas of North India The percentage of fully-immunized children was higher (16.2%) in UBS slums compared to 10.9% in non-UBS slums.¹⁷ Mathew J.L. et al, studied the reasons for non-immunization of children in an urban low income group in north India. Only 25 % were found to have received complete primary immunization as per the National Immunization Schedule.¹⁸ Shibani Bandyopadhyay et al (1996) attempted to evaluate the immunization coverage achieved and the channels of communication with which were effective in increasing coverage in three high risk areas of Delhi during October 1994. The overall immunization coverage was 89 %.¹⁹ Dr. S. Nirupam studied immunization status of infant’s community development block of Sarojininagar having a population of 1.6 lakhs, and was assessed in 1985-86 and 1987-88 to study the impact of UIP. The percentage of fully vaccinated children although much higher (17.2%, as against 1.9% in pre UIP year) was still low in relation to envisaged target. However, only 26.6% infants were un-immunized in 1987 – 88 as compared to 57.6% in 1985 – 86.²⁰ Studies by V.S.Salhotra and A.K.Sharma reveal that fully immunized children are 58.26% (60.0%), partially immunized children are 25.2% (28.8%) and non-immunized are 16.52% (11.2%).²¹ Bashir Gaash et al; in their study showed that in Kargil the immunization was as follows, 65% of infants received full primary immunization, some 7.5% of the infants remained completely un-immunized, while 28.5% were only partially primed.²² J. Yadav, P. Singh in their study stated that about 61 percent children received all the vaccines.²³

Immunization Status	Madhya Pradesh
Fully Immunized	60.8
Partially Immunized	27.7
Not Immunized	11.5

Conclusion

This study was done to know the knowledge, attitude and practices towards immunization of parents of children admitted to tertiary care hospitals attached to Mahadevappa Rampure Medical College, Gulbarga. Our study included 1000 children in the age of 12 to 60 completed months. The study group comprised of 544 males and 456 females. 449 were from the urban area while 551 were from the rural area. 813 of the children were Hindus, which was the majority. Our study showed that the 685 children were fully immunized (68.5%), 189 were partially immunized (18.9%), 125 were non-immunized (12.5%). Showing that the immunization status is still not upto accepted levels as prescribed by the Government

References

1. Saxena P, Prakash D, Saxena V, Kansal S. Assessment of routine immunization in urban slum of Agra district. Indian J PrevSoc Med 2008;39:60-2
2. Govt of India, 2001 census reports.
3. WHO (1978). Expanded programme of immunization Report and working papers, 31st session of the Who Reg. Committee, Mongolia, 21-28 Aug 1978, SEARO.
4. Park’s textbook of Preventive and Social Medicine, 18thed : M/S BanarsidasBhanot Publishers; Jan 2005. p.103.

5. Indian Ministry of health and family welfare. Department of family welfare. National population policy 2000. New Delhi: ministry of health and family welfare, Government of India, 2000. 37p
 6. Planning Commission. [nic.in/plans/planrel/five year/10 year/10th/volume 2](http://nic.in/plans/planrel/five%20year/10%20year/10th/volume%202)
 7. immunization status of children admitted to a tertiary care hospital of north India: reasons for partial immunization or non immunization. Devendrakumar, Anju Aggarwal. *J Health POPUL NUTR* 2010 june; 28(3):300-304
 8. Immunization status in children. Bhatia V, Swami HM, Rai S Ret al.
 9. . Reasons for partial immunization /non immunization with oral polio vaccine/triple antigen among children under 5 years. devinanayagan N et al. *Indian pediatrics* 1992 nov. 29 (11); 1347-51
 10. Maternal knowledge and perceptions about the routine immunization program-a study in semi urban area in Rajasthan.-U Manjunath. *Indian journal of medical sciences* Year : 2003 | Volume : 57 | Issue : 4 | Page : 158-163
 11. Singh MC, Badole CM, Singh MP. Immunization coverage, knowledge and practice of mothers regarding immunization in rural areas. *Indian-J-Public-Health*. 1994 July-Sept 38(3); 103-7
 12. The influence of provider behaviour, parental characteristics, and a public policy initiative on the immunization status of children followed by private pediatricians: a study from Pediatric Research in Office Settings. Taylor JA, Darden PM, Slora E, Hasemeier CM, Asmussen L, Wasserman R. Source: Department of Pediatrics, University of Washington, Seattle 98195, USA. *Pediatrics*. 1997 Feb; 99(2):209-15.
 13. A program to immunize hospitalized preschool-aged children: evaluation and impact. Bell LM, Pritchard M, Anderko R, Levenson R. Source: Divisions of Immunologic and Infectious Diseases, Children's Hospital of Philadelphia, University of Pennsylvania, USA. *Pediatrics*. 1997 Aug; 100(2 Pt 1):192-6.
 14. Malini Kar, Reddaiah VP, Shashi Kant : Primary Immunization Status of Children in Slum Areas of South Delhi - The Challenge of Reaching the Urban Poor, *Indian - J - Community Medicine*; Vol. 26, No. 3 (2001-07-2001-09).
 15. Sokhey J, Jain DC, Harit AK, Dhariwal AC. Moderate immunization coverage levels in East Delhi. Implications for disease control programmes and introduction of new vaccines. *J- Trop- Pediatr*. 2001 Aug; 47(4): 199 –203
 16. Bhandari B. *Indian Paed* in 1990 March-April; 57 (2): 197-201
 17. Chandra R, Srivastava VK, Nirupam. S. An Impact of Urban basic services on Immunization coverage in slum areas of Northern India. *Asia Pacific – J - of Public Health* 1992-93; 6(3). p.153-155
 18. Mathew JL, Babbar H, Yadav S: Reasons for non-immunization of children in an urban, low income group in North India. *Trop-Doct*. 2002 July; 32(3): 135-8
 19. Shibani Bandyopadhyay. Evaluation of PPI in Delhi 1996. 63(2). p. 133-137.
 20. Nirupam S. UIP in Sarojini Nagar block of Lucknow district. *Indian-J - of Community Medicine* 1991, April- June, Vol, XVI, N(2)
 21. Salhotra VS, Sharma AK. Immunization coverage among urban and rural children – *Indian - J – of community medicine*. 1999; Vol XXIV, No I.
 22. Bashir Gaash, Rohini Bhan, Shabnam Bashir. Immunization Status of Infants in a Remote District of Kashmir *Ind - J - for Practic- Doctor* Vol. 1, No. 3 (2004-11 - 2004-12).
- Yadav J, Singh P, Immunization Status of Children and Mothers in the State of Madhya Pradesh. *Indian - J - Community Medicine* Vol. 29, No. 3 (2004-07 - 2004-09)