



REVIEW OF ANC SERVICES & IMMUNIZATION COVERAGE IN RAISEN DISTRICT OF MADHYA PRADESH

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ABSTRACT

Background: Universal Immunization Programme as an element of primary health care has been integrated with maternal & child health services & family welfare services. Objective of the study was to review & evaluate the yearwise coverage of Universal Immunization Programme for all pregnant women, infants & children in the Raisen district of Madhya Pradesh (M.P.) under government health infrastructure for assessment of programmatic success.

Methods: Raisen district was selected for study out of 50 districts of Madhya Pradesh. 3 years retrospective online data about coverage of immunization & ANC services was collected from 8 blocks of Raisen district and was analysed.

Results: Total number of ANC registration has been increased from 54.11% (2009) to 59.28% (2012). Also TT1 received by 68.02% in 2012 in comparison to 65.79% (2009). But rest of the ANC services has declined by 3-6% approx. Immunization coverage of district has also been declined in the range of 0.2-17.2% in the span of 3 years.

Conclusion: ANC services are not showing overall favourable trends in upward direction whereas Immunization trends are also showing an overall declining trend in under 3 year old age group. The district is still lagging behind the set targets.

Keywords: Universal Immunisation Programme, ANC services, Trends, Raisen district

INTRODUCTION

Ante natal care & Routine immunisation are one of the most cost effective public health interventions.^{1,2} They are the main operational tools through which we can control the ever rising morbidity & mortality tolls in our country in timely manner.

On tracing the history of immunization in India we concluded that Expanded Program of immunization (EPI) was started in 1978. Thenafter Universal Immunisation Programme (UIP) was started in 1985. In 1992 UIP became a part of Child Survival & Safe Motherhood Programme and from 1997 onwards being implemented as a part of Reproductive & Child Health Pro-

gramme. Then finally National Immunisation schedule was implemented in the country along with the recommendations of Indian Association of Pediatrics. Currently under the umbrella of National rural health mission (now National Health Mission) & Reproductive and child health programme this all is running.^{1,2}

Through our knowledge we know that health of mother & child are interwoven in a very specific manner and are inseparable so an integrated approach like MCH (mother & child health) care has been adopted. Early institutional registration of pregnancy with regular antenatal visits for IFA tablets, other therapeutic/diagnostic help, timely relevant counselling etc. are included in ante, intra & post natal care programme. Along with this all vaccine preventable illnesses of childhood period are also addressed in this setting.

Based on the need assessment method, problems of the mother & child are tackled scientifically as per the national guidelines and are solved in overall health promoting ways.

The age at which the vaccines are best given & the number of doses of each vaccine is called the immunization schedule. We all view Routine immunization, the provision of a primary series of vaccines in the first year of life, as the corner stone of other primary health care efforts. The fact that immunization gives every child a minimum of four contacts with the health system before the age of one year is a tremendous opportunity that is often underutilized. While the impact of immunization on childhood morbidity & mortality has been great, its full potential has yet to be reached. Thousands of children in India still die from vaccine preventable diseases each year. The immunization schedule is framed keeping in view the epidemiological pattern of the diseases, the types of vaccine available & the administrative & economic feasibility of providing services. In our country we give: Two doses of TT to pregnant women. Three doses each of DPT & OPV & one dose each of BCG & measles vaccines to infants. School children are given DT & TT vaccines. As we know that a pregnant woman develops adequate antibody titres to protect herself & her child after birth from tetanus (Neonatal tetanus) only 2-3 weeks after the second dose. So for immunization of pregnant women it is recommended that the first dose be given on first contact during pregnancy. The second dose should be given ensuring at least one

month's interval after the first completing the schedule as early as possible.

In India, Immunisation is performed at PHC/UHC/CHC/subcentre level in various districts at every session site as per the micro-plan. Ideally at any given time, in any area 100% of the total estimated annual number of infants & 60% of the pregnant women should be registered. If the number do not fall within 10% of the estimates, it then becomes urgent to update the list of that particular area immediately. For this work help of Accredited Social Health Activists, Village Health Guides, Aanganwadi Workers etc. should be taken or this required information can be obtained from Eligible Couples & Child Register (ECCR).²

Medical Officer/ Immunisation incharge is responsible for carrying out immunization sessions as per the immunization microplan of a particular area which is under strict supervision of State authorities. Huge funds are utilized to full fill the need of immunization Programme in order to achieve the desired objectives of reducing morbidity & mortality due to vaccine preventable illnesses.

This study was undertaken with the objectives to review & evaluate the yearwise coverage of the population catered under National Programme of Immunisation in Raisen district.

METHODS

Raisen district was chosen for study out of 50 districts of Madhya Pradesh. Designwise it is a retrospective, observational secondary data based study.

Study period was 1 month (Dec.2013 – Jan 2014). Study was done in Raisen district. Whole district is divided in 8 blocks, each block is further divided into sectors & sectors into sections & each section is having 8-10 villages. At villages grass-root level functioning is in the hands of trained health workers, Auxillary Nurse Midwives (ANM), Village Health Guides (VHG), Accredited Social Health Activists (ASHAs) etc. under the supervision of health authorities. Children falling in age groups eligible for vaccination & all registered pregnant females were selected as target population. Official Record registers related with births & pregnancy, Eligible couple & child's register (ECCR) were the source of our data.

3 years retrospective online data was collected. As per the Immunisation schedule, yearwise data was collected. Operational definitions of Vaccine preventable diseases, Routine Immunisation schedule, Components of Immunisation micro-plan, An area map, Information about cold chain & logistics management, Information about safe injections & adverse events following immunization, Vaccine preventable disease surveillance data etc. were used as research instruments to gather the required information as per the objective of the study. Statistical analysis was done by entering data in MS office excel to get the required tables & graphs.

Estimated number of pregnant women & infants is calculated as follows:²

Pregnant women = Population x Birth rate.

Infants = Population x Birth rate x (1-Infant mortality rate).

Children below 3 yrs. = 3% of any given area population.

Children below 5 yrs. = 13% of any given area population. [Total population (2011 census)= 13,31699, Current birth rate of India= 22(approx.), Current Infant mortality rate of India=44(approx).]

RESULTS

Results are displayed in table-1 & table-2. First column of each table is showing variables under study followed by yearwise distribution of population under study in consecutive columns. Total number of ANC registration has been increased from 54.11%(2009) to 59.28%(2012). Also TT1 received by 68.02% in 2012 in comparison to 65.79%(2009). But rest of the ANC services has declined by 3-6% approx. Immunization coverage of district has also been declined in the range of 0.2-17.2% in the span of 3 years.

Table 1: Distribution of data related to Ante Natal Care services

	2009-2010 (%)	2010-2011 (%)	2011-2012 (%)
Number of registered females for Ante Natal Care	38862	39725	34299
Number registered in first trimester	21032 (54.11)	20961 (52.65)	20333 (59.28)
New women registered under Janani Suraksha Yojana (JSY)	24610 (63.33)	25060 (63.08)	25768 (75.12)
Number of women received 3 ANC check ups	33322 (85.74)	32253 (81.19)	28034 (81.73)
TT1 (Total number of pregnant women received)	25571 (65.79)	26785 (67.42)	23331 (68.02)
TT2 or Booster	35828 (92.19)	37753 (95.03)	29353 (85.57)
Total number of pregnant women given 100 IFA tablets	34280 (88.2)	39355 (99.06)	28603 (83.39)

Table 2: List of immunization services rendered to below 3 yrs. old children (approx. 39,965)

Vaccine	2009-2010 No. (%)	2010-2011 No. (%)	2011-2012 No. (%)
BCG	33768 (84.52)	33666 (84.27)	31155 (77.9)
DPT1	33655 (84.24)	34267 (85.77)	30969 (77.52)
DPT2	32811 (82.1)	33730 (84.43)	30269 (75.77)
DPT3	33882 (84.8)	34533 (86.44)	30441 (76.2)
OPV 0 (Birth Dose)	29547 (73.9)	25534 (63.9)	22680 (56.77)
OPV1	33141 (82.9)	33243 (83.2)	29868 (74.76)
OPV2	32968 (82.5)	33373 (83.54)	29444 (73.7)
OPV3	33199 (83.1)	34018 (85.15)	30087 (75.31)
Hepatitis-B1	30123 (75.4)	32493 (81.33)	29980 (75.04)
Hepatitis-B2	29413 (73.6)	33124 (82.9)	29358 (73.4)
Hepatitis-B3	29432 (73.6)	32791 (82.08)	29216 (73.1)
Measles	33578 (84.05)	34973 (87.5)	30136 (75.4)
Number of children > 16 months who received booster doses			
DPT Booster	24091 (60.3)	26554 (66.47)	22926 (57.38)
OPV Booster	23347 (58.44)	25813 (64.61)	21644 (54.18)

DISCUSSION Data given in Table No. 1 depicts better performance of ante natal services (year-wise) provided in Raisen district in comparison to data of DLHS survey performed in 2007-2008³ which had shown undercoverage of pregnant

females in terms of - a) 3 or more antenatal visits (only 25.9%),b) received at least one TT injection (only 51%). But the figures are still lagging behind the desired levels as number of registered women for ANC in first trimester is low. Most of

the pregnancies are not first pregnancy as data for coverage for TT1 is lower than TT2/Booster doses. Also in the year 2011-2012 there is a decline in the registration of total women for ante natal care. This may be due to better usage of contraceptive services or due to emigration for delivery to maternal place. Consequently there is decline in the population of under 3 children in the same period (Note : Denominator population is same as per the 2011 censuses for all the 3 yrs. analysis). Due to alarming morbidity & mortality rates (MMR, IMR, <5 mortality rate etc.) & after observing and analyzing the poor results of NFHS 1, NFHS 2, NFHS 3 & DLHS (2007-08)^{Table 3} in terms of ANC services & immunization pattern, Government of India have taken appropriate & intensified action in correct direction to fulfill the gap in achieving desired objectives of ANC services & immunization. Due to better operational functioning, managerial & supervisory efforts (at grass root level) certain districts started showing better results.

Table No.2 shows better figures in terms of immunization against major vaccine preventable childhood diseases in comparison to the past & matches with that of CES (coverage evaluation survey) of 2009.³ Generally this group includes children below 1 yrs. of age. Immunisation coverage is above 70% in most of the data values. More than 85% of coverage is generally required to get the herd immunity effect in any given geographical area but 100% coverage is the ultimate objective.

Table No.2 shows coverage of booster doses in under 3 yrs. age group of children which is an indirect representation of full immunization upto that age. This is not upto mark as values are not crossing the figures of 50s & 60s percent wise but this is certainly better than the data value of 40.7% of DLHS 3 survey (2007-2008)³ of the same area in the past. So overall trends in terms of antenatal care & immunization are showing favourable upward trends in the district but still they are lagging behind the set targets. India's Immunisation Programme has undergone a number of significant changes in recent years. These include a new policy environment, new vaccine (hepatitis & Japanese encephalitis), new procedures to solve old problems (eg. Injection safety) & new technologies for vaccine delivery & cold chain. Such changes underscore the need for constant attention, sharing of experience, creativity & flexibility in responding to problems. That's why time to time yearwise trends in terms of services provided should be reviewed and

analysed regularly. As this study is merely a secondary data based study so more & more such multicentric studies should be carried out in survey mode or qualitative manner to gather & disseminate much information about these issues for problem solving.

Table 3: Recent trends in the immunisation coverage in India.³ (For comparison)

Vaccine	NFHS-1 (1992-93)	NFHS-2 (1998-99)	NFHS-3 (2005-06)	CES (2009)
BCG	62.2	71.6	78.1	86.9
OPV-3	53.6	62.8	78.2	70.4
DT3	51.7	55.1	55.3	71.5
Measles	42.2	50.7	58.8	74.1
Overall	35.4	42	43.5	61

The National Family Health Survey (2005-06) & DLHS-3 reports that only 43.5% of children in India received all of their primary vaccines by 12-23 months of age.⁴ Also UNICEF coverage in 2009 indicated 61% of children as fully immunized.

There is a wide variation among states, and states with poorer immunization coverage have higher child mortality rates.⁵ In an evaluation study DPT3 coverage was analysed based on the reports on survey conducted in 193 countries during 1986-2006. It was found that crude coverage of DPT3 increased from 59% in 1986 to 65% in 1990, 70% in 2000, & 74% in 2006. In India, Department of Family Welfare has developed a detailed Medium-term Strategic Plan for the Universal Immunisation Programme (UIP 2004-2009).

The proportion of fully immunized children has declined during this period, in 8 states - Andhra Pradesh, Gujraat, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Punjab & Tamil Nadu. These states are generally regarded as better performing states in health & economically more prosperous than other states. On the other hand immunization coverage rates have shown a significant improvement in West Bengal, Bihar, Jharkhand & Chhattisgarh (NFHS 3).⁴ Over all full immunization coverage amongst 12-23 months of age children has marginally increased from 42 % to 43.5%. Between 1984-2003 the infant mortality rate (IMR) in India has fallen from 104 to 60 deaths per 1000 live births. Over the last 15 years there has been a general decline in the reported number of cases of six main Vaccine preventable diseases (VPDs). Also since the incep-

tion of Polio eradication initiative in India, there has been a dramatic decline in the number of paralytic Polio cases from an estimated 35,000 cases annually in 1994-1995, to less than 200 cases each year (except in 2002), 2005 onward.^{1,2} In many countries where 8% to 15% of children used to become chronically infected with HBV, vaccination has reduced the rate of chronic infection to less than 1% among immunized children so from December 2006, 164 countries including India vaccinated infants against Hepatitis B. Recently coverage levels in most of the districts have been declining or not improving for last many years particularly for DPT (NFHS-3).⁴ Cases of Diphtheria have been reported from Rajkot & Delhi (Patel et al 2004; CBHI 2001; Singhal et al 2000; Lodha et al 2000).^{7,8} Analysis of recent outbreak of Measles in Greece & Bulgaria (Marinova 2009)⁹ indicates that low coverage of vaccination in children & study highlights that there is need of constant supervision of National Immunisation Programme & repeat dose of MMR in adolescents or Youth (Pervanidou et al 2010).¹⁰ So once again above mentioned examples are suggestive of intelligent strategic handling of all immunization programmes at each & every level.

CONCLUSION

In view of all this, reasons to find out left outs & drop outs should be intensified & possible interventions like more communication, more counselling, more interaction with resistant groups, more IEC (Information, Education & Communication) campaigns, organizing tracking of children & pregnant women etc. should be intensified.¹¹ Also identification and solution of common issues related to routine immunization records & reports are to be addressed. Routine Immunisation Monitoring System (RIMS) should be strengthened to analyse the routine coverage data in order to develop an appropriate action plan for the sub center/PHC/UHC levels.

Planning of regular supportive supervision visits with right tools like supervisory checklists & forms, training material & job aids will help staff to continuously improve their own work performance. Need for conducting effective review

meetings with health workers & staff, ICDS (Integrated childhood development services) supervisors, AWWs, local NGOs (Non government organization) etc. is also strongly demanded.

Finally community participation is recommended which is the most important part of the programmatic operational success so identification of different communication channels & tools for communicating information, education on Immunisation is drastically required.

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