

Improving age appropriate immunization among urban poor infants  
*Possible Options and Approaches*





# **Improving age appropriate immunization among urban poor infants**

## *Possible Options and Approaches*

*Report of formative research conducted in selected slums of Indore, November 2004*

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# List of Abbreviations

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ANM	Auxiliary Nurse Midwife
AWC	Anganwadi Centre
AWW	Anganwadi Worker
BCC	Behavior Change Communication
BCG	Bacille Calmette Guerin
BGMS	Bhartiya Grameen Mahila Sangh
CBO	Community Based Organization
CHMO	Chief Health and Medical Officer
DHFW	Department of Health and Family Welfare
DIO	District Immunization Officer
DPT	Diphtheria Pertussis Tetanus
EAG	Empowered Action Group
EHP	Environmental Health Project
FGI	Focus Group Interview
FPAI	Family Planning Association of India
HH	Household
ICDS	Integrated Child Development Services
IMC	Indore Municipal Corporation
MP	Madhya Pradesh
NFHS	National Family Health Survey
NGO	Non Government Organization
NPP	National Population Policy
OPV	Oral Polio Vaccine
PHC	Primary Health Center
PHNO	Public Health Nursing Officer
SLI	Standard of Living Index
TA	Technical Assistance
USAID	United States Agency for International Development
UT	Union Territory
VPD	Vaccine Preventable Disease



# Acknowledgement

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We hope that the findings from this report will help in defining issues and developing strategies to improve age appropriate immunization, particularly in the slums of Indore.





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## Summary of Findings and Program Implications

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**Need to strengthen immunization reach in slums:** The urban poor, many residing in slums, comprise about one-fourth of India's 285 million urban population. Outbreaks of vaccine preventable diseases (VPDs) are more common in urban slums owing to high population density and continuous influx of a new pool of infective agents with the immigrating population. Measles produces a higher percentage of younger cases with associated higher mortality, owing to prolonged exposure to infected siblings in the small living space of slums. The Department of Health and Family Welfare, Delhi reported diphtheria related deaths and issued a disease surveillance note in 1998, stating that due to a considerable decline in DPTIII/DT coverage particularly in urban slums of Delhi, during the last three years a rise in the incidence in diphtheria has been observed<sup>1</sup>. Immunization programs in urban areas can exert significant effects on VPD associated mortality by limiting the number of cases, decreasing clustering of cases within households and increasing time lapse between outbreaks. The National Population Policy (NPP), 2000 of India aims to immunize all children against six common childhood diseases (Tuberculosis, Tetanus, Pertussis, Diphtheria, Measles and Polio) by 2010. Although immunization coverage has increased substantially in recent years, nearly 60% of the slum dwelling children remain incompletely immunized. Receipt of immunization is seldom in accordance with the National Immunization Schedule, with very few infants receiving necessary vaccines on time.

**Indore Urban Health Program and immunization coverage enhancement in slums of the city:** The Indore Urban Health Program evolved through evidence based consultative process resulting in an NGO-CBO partnership model. This model aims at demand generation by building social infrastructure and linking slum communities with public and private maternal and child health (MCH) services. Five NGOs along with partner lead and basti CBOs<sup>2</sup> are implementing the program in 75 slums of Indore covering approximately 26,500 households (or a population of 1.3 lakhs). Interventions are focused on improving service coverage of the urban poor, the adoption of appropriate behaviors (through BCC and promoting health coverage activities such as immunization camps), and building the capacity of lead and basti CBOs. The Urban Health Program efforts have led to organization of regular immunization outreach camps and community-provider linkage through the basti CBOs. This has resulted in improved reach of immunization services to slum dwelling children.

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<sup>1</sup> F6(49) Surveillance/MCH/DFW/98-99, dated 11/12/98

<sup>2</sup> Definition of lead and basti CBO at the time of Urban Health Program initiation were as follows: A) Lead CBO – a community group/organization from one or more slums working for slum welfare for over two years B) Slum based CBOs – Existing or newly formed community groups whose capacities will be built during the course of the program

The present study was undertaken to obtain empirical evidence on age appropriateness of DPT I and DPT III receipt, drop-out in DPT series and understand factors associated with it in selected slums of Indore.

**Findings from the formative research:** The study sample consisted of mothers of 101 infants in the age group of 2-6 months (55, 2-3.9 months old and 46, 4-6 months old) across 8 slums, comprising 57 females and 44 males. Total coverage for DPT I was 72.3%; only 35.6% received DPT I before completion of 2 months. DPT III status was investigated for 46 infants in the age group of 4-6 months. Total coverage for DPT III was 39% (18 in number), while 22% (10 in number) received it at appropriate age that is, before completion of 4 months. Of the 17 infants in the age group of 4-6 months, who received DPT I timely, 10 received DPT III on time.

#### *Possible causes for low age appropriate immunization and high drop out*

##### Information constraint

- Mothers are well informed about benefits of immunization but unaware about a) appropriate age for receipt of different vaccines b) significance of timely immunization and c) necessity of repeat visits to completely immunize their child.
- There is incorrect or no communication about camp date and venue. Some families are misinformed about adverse effects of immunization.

##### Social constraint

- Temporary migrations to native village for delivery or social events defers receipt of immunization services as mothers depend on the slum level camps and may not make effort to demand services elsewhere. It is a challenge for the basti CBOs to re-track these cases on their arrival into the slum. New migrants in the slum have weak social networks and difficult are to reach.
- Children of working mothers and new migrants are left out more often due to a weak social network.
- Tribal groups such as "*pardhis*" are averse to use of medical interventions and remain ostracized by CBOs due to their different cultural background.

##### Economic constraint

- The most common source for receiving immunization services in the slums studied is the immunization outreach camp (93%). Irrespective of the place of birth ie home or institution there was complete dependency on outreach camps for availing immunization services. It is worth mentioning that 83% of the deliveries were domiciliary. Private providers through frequently consulted for minor ailments were not approached for childhood immunizations as it is an expensive proposition as compared to the Rs 3/- (syringe cost) at the outreach camp. Families generally did not seek immunization services outside the basti due to a) dependence on services available at outreach camps and b) lack of personnel support, financial and opportunity cost of using fixed facilities.

##### Supply/ service constraint

- Many CBOs are not representative of all the communities present in the bastis resulting in left out pockets within slums.

- Regular organization of camps is affected by pulse polio rounds, trainings of health personnel etc. during which alternate arrangements are not always planned.
- Health programs suffer a set back during evictions, a common feature in slums. Families are preoccupied with the challenges of resettlement and restoring livelihood. Basti CBOs have to be remobilized and a new site for outreach activities, acceptable to all has to be identified.

### **Possible options for improving age appropriate immunization in the Indore Urban Health Program**

#### Improving reach of services

- NGO-CBO need to negotiate with ANMs, for conducting camps on “well informed” fixed days/dates.
- Representation of all groups present in the basti (including tribal groups), in the basti CBOs needs to be ensured.
- Basti CBOs should make registration of new migrants similar to their routine registration and ensure active follow up of these cases.
- Basti CBO members should be introduced to the entire target population of the slum beyond their lanes or areas of work so that it is easier to forge linkages with the new neighboring target population arising due to jumbling of population in in-situ development. Mapping the target population on a monthly basis on basti maps may be an option.
- Forums for public health providers and NGO/ CBO members to discuss concerns and resolve conflicts need to be created. If possible a quarterly meet resulting in plans for the next quarter should be effective in regularizing outreach activities.

#### Improving service seeking behavior

- Mothers need to be counseled on benefits of complete and age appropriate immunization rather than restricting to benefits of immunization only during group counseling sessions.
- Individual counseling for cases of strong opposition against health interventions should be planned and executed at the earliest.
- Provision of immunization cards to all pregnant women/ eligible children and encouraging mothers to carry it along when migrating to a new area needs to be ensured.
- Working mothers need to be encouraged to postpone work on camp days when providing information about camp details in advance and promoting use of fixed facilities. Usage of fixed facility by populace endows advantages of regular services, exposure to varied health services such as ANC check ups etc.
- Invitation to medical professionals to address mothers concerns about immunizing the child at community events is a possibility.

### **Implications for other programs focusing on health/ immunization services in slums**

- Building collective capacity and strength among slum communities - For any health program to be sustainable there is a need to build the social infrastructure. People’s ability to negotiate for health services can be increased through collective, organized effort, once they are equipped with information on needs and provisions.

- Evolve a functional community- provider linkage - A functional linkage of communities with available and authentic health service providers needs to be facilitated through regular dialogue and reaching consensus on roles and responsibilities.
- Recognizing and encouraging champions within health systems - The urban health systems are generally weak. The medical officers, ANMs, LHVs and other health workers who work tirelessly, despite scarcity of resources, need to be constantly encouraged and recognition given to their efforts. The morale of those who have been able to contribute towards society needs to be boosted and sustained, so that similar process of delivering services continues and they become champions for many others.
- Help slum dwellers develop contingency plans for evictions and relocations - Slum dwellers frequently face challenges of eviction and relocation. A plan to overcome the barriers in reaching health services during such contingencies needs to be ever-ready with the health providers and community leaders/ groups.
- Special program strategies for temporary migrants - An important challenge in planning and delivering health services in urban slums is the mobility of population. Slums also witness temporary migration for certain months of the year, particularly around harvest season. It is common for most slum women to go back to their native villages for delivery. Such movements make the process of maintaining client lists and following up of such clients by health workers complicated. Behavior promotion activities also get disrupted because of such movements. It is necessary to factor in the rapid mobility of population in slums while planning for health services in slums. Steps to make the services reach the migrant population could include (i) distribution of pictorial cards among migrants which emphasize desirable behaviors and which can be used at health facilities at the place of destination (ii) sensitizing health providers to offer services even temporary migrants without discrimination (iii) encouraging temporary migrants to avail services from nearby health facility after they return to the slum even if camp has been already held.

## 1.1 Overview of the USAID-EHP Indore Urban Health program

The USAID-EHP Urban Health Program in India aims to improve child health and nutrition among the urban poor in selected cities by providing technical assistance to improve newborn care practices, age-appropriate immunization, control of diarrheal disease, prevention of malnutrition, and sanitation and hygiene. The program also aims to increase the commitment of various stakeholders to include health elements in urban slum development efforts. Indore, Madhya Pradesh (MP) was selected as the first site for this technical assistance.

### 1.1.1 Key technical assistance activities in Indore

#### *Stakeholder meetings*

At a series of urban health stakeholder meetings held during July–September 2003, participants agreed on the following program directions:

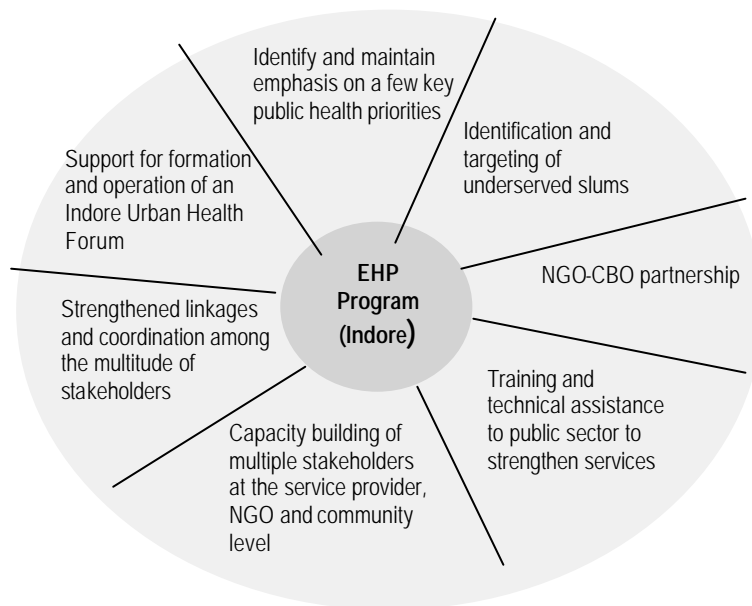


Figure 1.1: Program directions that emerged as a result of a series of stakeholder meetings

#### *Situation Analysis*

A situation analysis of the health of the urban poor in Indore was carried out to guide program development in the city (1). Key findings included the following:

- Urban average child health data masks the inequities that the urban poor suffer. Available urban child health data does not provide a clear picture of the magnitude of the problems of the urban poor.
- Despite the growth of urban poverty in Madhya Pradesh (MP), the allocation of health sector resources between rural and urban areas is still heavily biased in favor of rural areas.
- Even though the poor constitute almost 50% of MP's urban population, the allocation of health resources remains tilted in favor of the better-off urban sections.
- Existing public sector health services in urban areas have remained largely under-utilized, especially by the poor.
- For a large variety of illnesses, slum dwellers go to private, under-qualified medical providers.
- Cultural and traditional beliefs play a significant role in influencing the adoption of appropriate maternal and child health-related behaviors. Breastfeeding, for example, is initiated three days after delivery due to the belief that this enables the mother to recoup from the stress of parturition. During this interim period the newborn receives herbal concoctions, tea, etc.
- Key public health issues—such as the risk of home deliveries, low birth weight (LBW) babies, and malnutrition among mothers and children—are the same for the urban poor as for the rural poor.
- NGOs in Indore city have focused their efforts on promoting groups for savings and credit, with added elements of vocational training and health camps. Because of an earlier effort (i.e., Self Help Groups), NGOs' had considerable inroads into the slums, which provided an appropriate platform for building a health program.
- Indore has a rich culture of community level processes. Though most of the community-based organizations (CBOs) do not have a background in health work, their tremendous capacity to mobilize people could be used to further the objectives of urban child health programs in vulnerable slums.

#### *Health Vulnerability Assessment*

While efforts to fight urban poverty have focused on slums, the category of "slum" excludes some of the poorest settlements. At the present time, "slum" has several meanings: squatter settlements, private subdivisions, traditional inner city quarters, urban villages, or any settlement that does not conform to state defined norms (2). This definition may vary from one state to another, with the result that an area categorized as a slum in one state may not be called a slum in another. For the purpose of Census of India, 2001, the slum areas broadly constitute of 1) All specified areas notified as 'Slum' by State/Local Government and UT Administration under any Act; 2) All areas recognized as 'Slum' by State/Local Government and UT Administration which may have not been formally notified as slum under any Act; 3) A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities (3).

This phenomenon of variant definitions leads to a gross underestimate of urban poverty. Smaller and less established slums are often not covered; temporary settlements of construction site



workers are completely missed; and pavement dwellers (among the poorest) are also omitted in the estimates. At times underestimates of urban poverty are also seen in recognized slums where “hidden” populations exist, such as rental groups or populations living on the edges of a slum; this is especially the case in cities experiencing rapid urbanization. Including all these populations would yield higher estimates of urban poverty—a picture much closer to the reality. Identifying slums as the only areas of urban poverty, therefore, is not an effective manner for reaching the vulnerable sections in a city.

A health vulnerability study was undertaken to identify and map the vulnerable population in Indore from a health perspective and also to identify the key internal and external factors that predispose certain urban populations to health vulnerability. The most vulnerable slum locations are the main focus of USAID-EHP’s program of technical assistance in Indore. The process started with a list (obtained from the Municipal Corporation and Mayor’s Office) of 438 slums, a number which eventually grew to 539 through this participatory mapping and validation process. Of these 539 slum locations, 156 were identified as vulnerable based on the criteria of economic conditions (e.g., occupation), social conditions (e.g., gender inequity), living environment (e.g., water and sanitation facilities), access and usage of public health services (e.g., ICDS, DHFW), disease incidence and collective organized community effort

These locations were then further categorized into three groups: most vulnerable, moderately vulnerable, and marginally vulnerable. This assessment provides an example of a methodology to identify and map all recognized and unrecognized slum areas and to classify these according to health vulnerability.

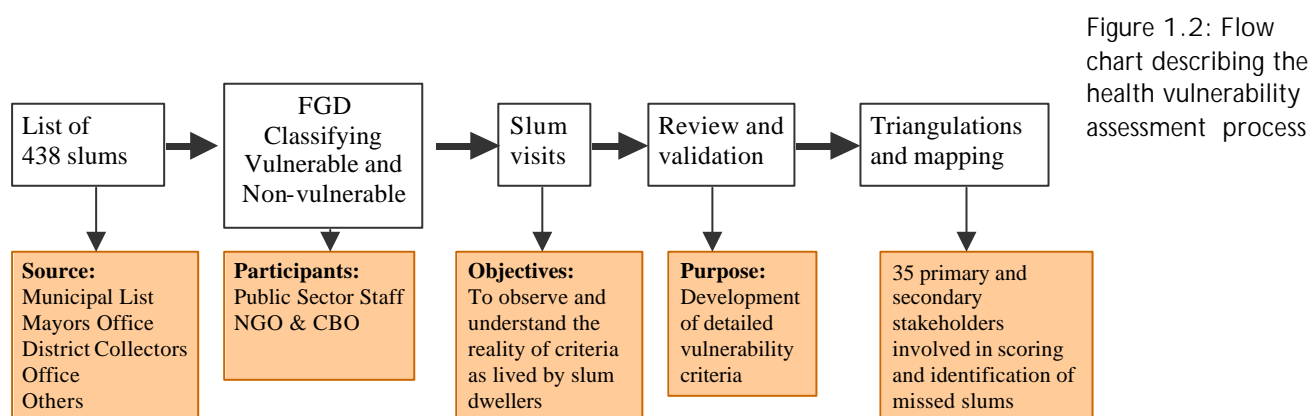


Figure 1.2: Flow chart describing the health vulnerability assessment process

### 1.1.2 Program Directions

*Community based programming NGO-CBO partnership*

The process and plan for providing technical assistance to community-based urban health efforts in Indore slums led to the formation of partnerships between NGOs and CBOs due to their complementary attributes.

Five NGOs along with partner CBOs are implementing the program in 75 slums in Indore covering approximately 26,500 households (or a population of 1.3 lakhs). Interventions are focused on improving service coverage of the urban poor, the adoption of appropriate behaviors (through BCC and promoting health coverage activities such as immunization camps), and building the capacity of lead and basti CBOs.

The specific objectives of the NGO-CBO partnership are as follows:

- To increase the adoption of behaviors appropriate to child health priorities.
- To increase coverage by key child health services.
- To increase the capacity of slum-based CBOs to sustain improved behaviors and service coverage.
- To increase coordination between public sector providers and communities

*Technical Assistance to public sector*

<b>Technical Assistance (TA)</b>	<b>Need identified</b>	<b>Technical Assistance provided</b>
TA to Department of Public Health	Several meetings and consultations with Health Department officials led to the identification an approach to strengthening coordination and monitoring at the ward level.	A ward-level core group approach to strengthen coordination mechanisms and linkages with the community was developed.
TA to Indore Municipal Corporation	Through interactions with IMC officials and a review of conditions in the slums, the need was identified to support a hygiene sanitation pilot to improve hygiene conditions in select slums and to strengthen the capacity of IMC officials regarding GOI's public welfare schemes.	A Hygiene Improvement Pilot (with community participation) in coordination with IMC in two slums is in process.  Capacity building of IMC officials on techniques of solid waste management, community managed sanitation systems and welfare scheme was undertaken

The other activities of the EHP-USAID urban health program in India include:

- providing technical assistance to other cities based on the lessons learned from Indore to support the State Governments of India in developing proposals for the National Reproductive and Child Health Program
- advocacy for urban health issues and generating a knowledge inventory of information on urban health

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## 1.2 Rationale for the immunization rapid survey and formative research

Immunization is one of the most successful public health interventions of the past century responsible for averting 3 million deaths globally each year and protecting millions more from illness and permanent disability (1). Needless to say that routine immunization has been the cornerstone of India's health programs. Data from the NHFS 2 (1998-99) and its SLI based reanalysis reveals that 60% of the children aged 12-23 months in urban India are fully immunized; coverage among urban poor children is a dismal 43%. Immunization services do not reach almost one-fifth of the urban poor in Madhya Pradesh (MP) (2). Immunization coverage in urban areas of other EAG states such as Bihar, Rajasthan and Orissa is 19%, 27% and 49% respectively as compared to 84% and 73% in Tamil Nadu and Kerala (3). The urban poor, many residing in slums, comprise about one-fourth of India's 285 million urban population. Outbreaks of vaccine preventable diseases (VPDs) are more common in urban slums owing to high population density and continuous influx of a new pool of infective agents with the immigrating population. Measles produces a higher percentage of younger cases with associated higher mortality, owing to prolonged exposure to infected siblings in the small living space of slums. The Department of Health and Family Welfare, Delhi reported diphtheria related deaths and issued a disease surveillance note in 1998, stating that due to a considerable decline in DPTIII/DT coverage particularly in urban slums of Delhi, during the last three years a rise in the incidence in diphtheria has been observed<sup>3</sup>. Immunization programs in urban areas can exert significant effects on VPD associated mortality by limiting the number of cases, decreasing clustering of cases within households and increasing time lapse between outbreaks. The National Population Policy (NPP), 2000 of India aims to immunize all children against six common childhood diseases (Tuberculosis, Tetanus, Pertussis, Diphtheria, Measles and Polio) by 2010.

### 1.2.1 Immunization services and coverage in Indore slums

Indore is the business capital of M P with the highest decadal growth rate of urban population (47% between 1991-2001) amongst major cities of MP (4). At the district level (Indore district, population 2.6 million) the health department is the main provider for immunization services. The department is headed by a Chief Health and Medical Officer (CHMO) followed by the civil surgeon. The district immunization officer (DIO) and the Nodal Officer (Urban) are at par. Indore city (population 1.6 million<sup>4</sup>) is divided into 69 wards (ward being the smallest administrative unit) which are organized into 4 zones (Hukumchand, Malharganj, Nanda Nagar and Sanyogita Ganj) for administrative purposes. The health department structure for delivery of primary health care services for Indore city, zone and ward wise is detailed below.

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<sup>3</sup> F6(49) Surveillance/MCH/DFW/98-99, dated 11/12/98

<sup>4</sup> According to Census, 2001 the Indore's population was 1.59 million. Local authorities estimate it to be about 2 million now.

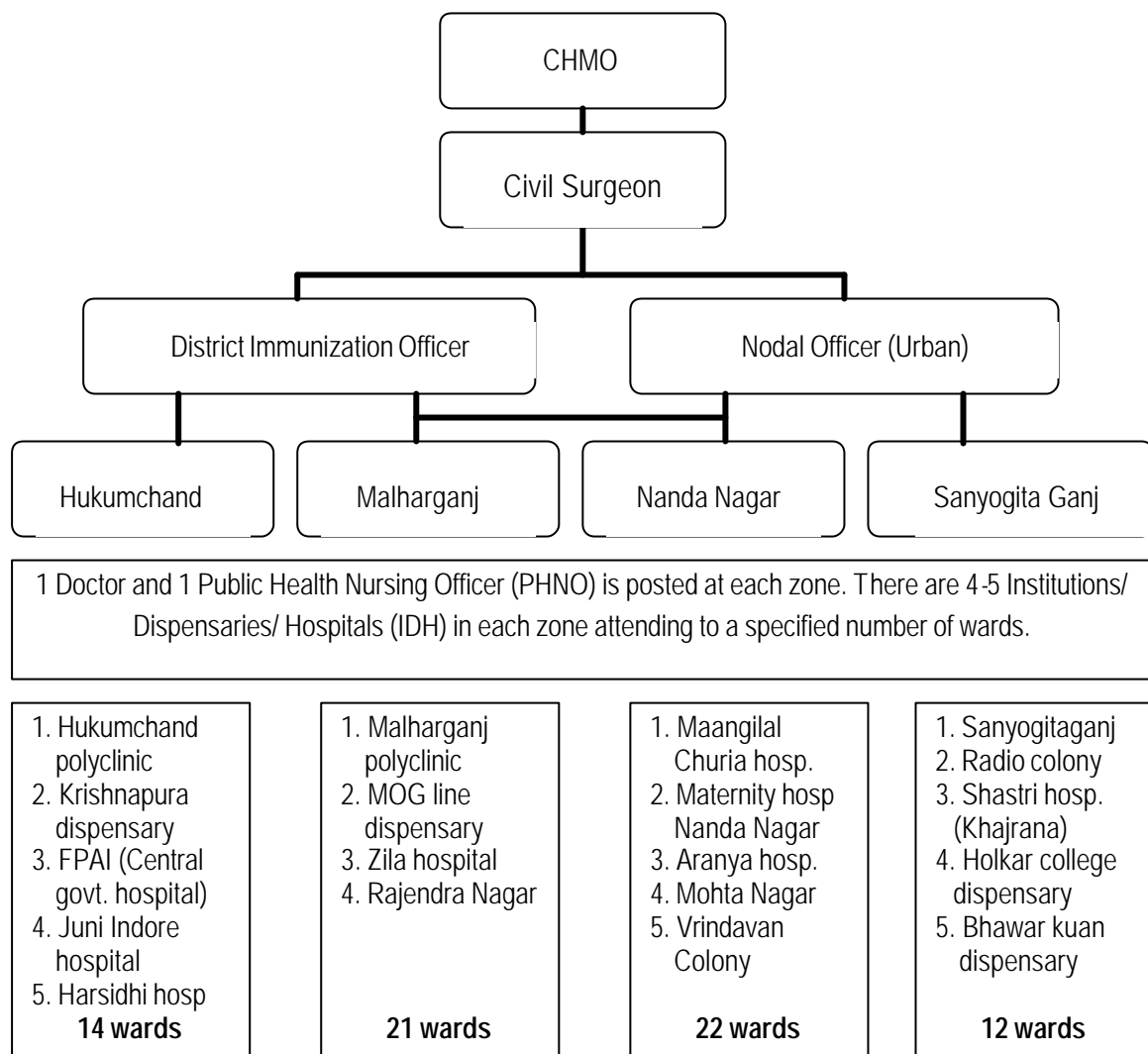


Figure 1.3: Primary health delivery structure for urban Indore

At the initiation of the USAID-EHP multi-stakeholder urban health program immunization and other health services were largely available at the health centers; there was limited presence of public sector providers in the slums. The inertia amongst the vulnerable urban poor to seek services and they having very low social access to these facilities compounded the situation. With the slum based groups holding no ground in most slums there was no means of linking the people to their rightfully deserved health services. Initial visits and interactions revealed that there was no opposition to services like immunization amongst slum dwellers with the exception of certain tribal groups; the problem was related to low awareness about benefits and service providers for immunization and related services. Those who were informed about the benefits of immunization were trapped in the struggle for existence in the testing environment of the slums with no time and financial resources to avail these services from distant health facility at the expense of losing the daily wage.

Through the USAID-EHP supported community based program each of the five NGO-CBO consortia developed strategies to meet the objective of increased coverage of key child health

services in slums. The most feasible option was to approach the public sector providers and through a sustained dialogue ensure organization of immunization camps within the under served areas on a regular basis. The public sector with its mandate to provide services to the poor was willing though problems of inadequate staff and materials continued to plague regular organization of camps for some time. In September 2003, children aged 12- 23 months fully immunized ranged from 34 – 49%<sup>5</sup> in the slums of Indore (5). However, it cannot be said with certainty as to how many received the vaccines appropriate to age according to the National Immunization Schedule in India (see page 18). After completion of 12 months of age about 30% of the children were yet to receive DPT I in the selected intervention slums (5).

The basti CBOs were gaining strength both in numbers and capacity to deliver services and promoting optimal behaviors. They have gradually evolved into a strong community based network for the ANMs to depend on for reaching out to all the target populace, conducting individual and group counseling and supporting the organization of the camps in the slum. Division of work area by basti CBOs such that each member takes responsibility of reaching all target children and pregnant women in their lanes or vicinity of their house and as far as possible representation of all pockets, castes and occupation groups within the slum in the basti CBO ensured reach to all sections of the basti including the perpetually left out and difficult to reach pockets. Regular contact of basti CBOs with the community bred familiarity and faith in advice and counseling. Visits by medical officers, ward councilors etc coordinated by the CBOs added to the credibility and acceptance of the basti and lead CBO and also motivated the ANMs.

The approach became multi-pronged with efforts for maximizing use of available resources, social mobilization, and advocacy for immunization as well as inter-personal communication to negate fears associated with immunization being conducted in tandem. The program was able to improve the reach of immunization services but age appropriateness of immunization remained low.

Close observations of immunization camps and household level practices related to childhood immunization by EHP identified volunteers from December 2003 to April 2004 as well as the monthly and quarterly reviews enabled determination of some factors responsible for high left out and drop out rate and the consequent low age appropriate immunization coverage. Some factors are listed below:

- Lack of information or misinformation about the immunization camp venue and dates
- Camps organized at an inconvenient time for employed caretakers and no alternative care takers to attend to baby's essential health care
- Misinformation about vaccine effects especially if an older sibling or a known child suffered adverse effects post immunization
- Baby ill on the camp day and family's complete dependency on basti camps.

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<sup>5</sup> Children (12 – 23 months) completely immunized: 34% in most vulnerable, 45% in moderately vulnerable and 49% in other slums

- At some times limited availability of certain vaccines and refusal to open BCG vials in the absence of a minimum required children to enable adequate utilization of the vaccine on behalf of the provider (increased missed opportunities)
- Not all births/ babies are registered and followed up by providers to ensure that some (if not all) of the above concerns are addressed

This led the EHP team along with the NGO partner in Indore to investigate whether a monthly immunization improvement initiative<sup>6</sup>, with the involvement of a local child health team (basti CBO, dai, AWW and support from ANM and lead CBO) be an effective tool for reaching left outs to ensure improvement in DPT I coverage by 2 months of age based on the assumption that improving timely DPT I coverage helps improve overall immunization coverage as well in areas where outreach/immunization camps are held regularly.

It was planned to attempt and assess the effectiveness of such a community based scientific trial (operations research) in selected slums of Indore the learning from which would enable scale up and implementation in other program sites.

The formative research (October – November, 2004) in selected slums of Indore was envisaged to provide detailed empirical evidence on age appropriateness of DPT I and DPT III immunization, drop out from DPT series and related factors in these “trial”/ intervention slums. The data would serve as a baseline for assessing the effectiveness of the above mentioned trial.

The formative research would improve understanding of reasons for delayed or non immunization for DPT I and DPT III and enable identification of barriers and options for enhancing age appropriate immunization. These findings would also guide the development of the immunization trial.

### **1.2.2 Objectives of the immunization rapid survey and formative research**

#### **Outcomes oriented**

- To determine the DPT I and DPT III immunization status of 2-6 month old children by completion of 2 and 4 months respectively and understand factors associated with DPT receipt in 8 slums of Indore.
- To understand barriers and evolve practically feasible options associated with timely immunization and drop out from DPT series specific to the context.
- To determine the current roles of basti CBOs (grass root workers of the urban health program) pertaining to delivery of immunization services in slums and develop/ strengthen mechanisms

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<sup>6</sup> The immunization improvement initiative will include the following components:

1) Immunization coverage mapping a) Births registered b) DPT I eligible children identified c) DPT I left outs identified d) “Special attention” households identified 2) Family visit to inform date, venue of camp day (a week prior to the camp) 3) Repeat visits to “special attention” households by “Model” women 4) Motivating left outs to visit nearby fixed health facility (public/ private)

**Process oriented**

- To better understand the challenges of conducting research in slum settings and its management.
- To develop and refine methods to identify current immunization related practices of slum communities

**1.2.3 Why investigate DPT I and DPT III status to study age appropriateness of immunization?**

This investigation was based on the assumption that once the childhood immunization series is initiated on time, the age appropriateness of other immunizations to follow can be achieved. This should be true for settings where regular outreach camps are being conducted. Thus DPT I status was used as the premise for investigation. DPT III status investigation was conducted to understand reasons for drop out with or without timely initiation of DPT series.



## 2.1 Overall process and methodology for conducting the formative research

## 2.1.1 Study design and methodology

- The ideal sample for the investigating DPT I status was determined as 100 mothers of infants in the age group of 2-6 months. For investigating DPT III status information was obtained from mothers of infants in the 4-6 months age group from the total sample.
- The definition for timely receipt was based on the National Immunization Schedule giving an allowance of 15 days. Thus, receipt of DPT I by 2 months of age and DPT III by 4 months was taken as the cut off for ascertaining age appropriateness.

Table 2.1 National Immunization Schedule (India)

BENEFICIARY	AGE	VACCINE
Infants	Birth	BCG* and OPV**
	6 weeks/ 1.5 mths	DPT&OPV
	10weeks/ 2.5 mths	DPT&OPV
	14weeks/ 3.5 mths	DPT&OPV
	9 months	Measles vaccine
Children	18 months	DPT&OPV(Booster dose)
	5 years	DT vaccine
	10years	Tetanus toxoid
	16years	Tetanus toxoid

\*At birth or at the time of DPT/OPV

\*\* dose called as Zero dose and can be given till 14 days of age, if missed early

Note: Gol has initiated HB at 6, 10 and 14 weeks in selected pilot project districts and Indore is one of them

- The selection criteria for identifying study slums was as follows:
  - Classified either extremely or moderately vulnerable during the vulnerability assessment conducted in October 2002
  - There was one or more active basti CBO ie supporting organization of camps, informing target families, registering eligible cases and tracking etc.
  - Communities were heterogeneous such that no particular religion or caste predominated and influenced the overall findings
  - A venue used for outreach activities such as immunization was within the slum
  - The slum was in the catchment of an urban PHC/ health center
  - There was no other source of immunization service than PHC and outreach camp
- Based on the above criteria, for reaching mothers of 100 infants in the age group of 2-6 months, 8 slums in the work area of the NGO, Bhartiya Grameen Mahila Sangh (BGMS) with a population of approximately 14,000 were selected. (Calculation based on family size of 6.2).

- A complete listing of households in each of the 8 slums was done based on slum maps developed by the investigators. Each house was visited till at least 100 mothers of infant in the age group of 2-6 months were identified<sup>7</sup>.
- Information on current DPT I and DPT III immunization status and associated factors were obtained through an immunization rapid survey (Annex 2). Focus group interviews (FGIs) with mothers of “non-users” to identify reasons for left out were conducted on at least 50% of the eligible sample (Annex 3)
- A team of 8 investigators (in pairs) completed the survey and FGI in 4 days covering 2 slums each. The first day involved mapping of the slum such that no pocket/ house was missed, house to house visit and rapid survey enquiry (Annex 1). Survey formats were coded and checked for final submission on the same day. On the second days visit any discrepancy in the survey information was clarified and FGI conducted.

### **2.1.2 Research tools and formats**

The rapid survey and FGI tools with reporting format are annexed (Annex 2,3 and 4). The survey tool was pretested on 10% of the sample and necessary modifications made.

### **2.1.3 Data Collection: Training of Investigators and Process**

The data collection team comprised of members with experience in conducting community based research and adequate knowledge of Indore slums. Members were oriented to the objectives, process and tools during a 3 hour interactive session with the research planning and tool development team.

### **2.1.4 Data / Information compilation and analysis**

MS excel was used for data entry and analysis. Dummy tables were developed using codes from the rapid survey tool to understand the analysis. Data from the immunization rapid survey was double entered on final excel tables to minimize human error.

The information from FGI was taken as a running record and entered into the given format (Annex 4) after completing the field visit. A method of quantifying the qualitative data was devised whereby responses were classified as follows: affirmation by < 25% of the respondents as “few”, 25 – 50% as “some”, 50 -75 % more than half and >75% as most.

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<sup>7</sup> Initially random sampling was tried to identify households. However, temporary migrations in the slums resulted in availability of fewer families than listed households. Family size in these slums was smaller than envisaged; consequently the methodology had to be altered to a census to reach 100 children.

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### 3.1 Age appropriate DPT I and DPT III status and associated factors

#### 3.1.1 Profile of selected study area

This section provides the profile of the eight slums selected for the research.

##### **Ahirkhedi**

The slum is an agglomeration of the main Ahirkhedi and three smaller settlements namely Digvijay singh Nagar, Nath colony and Bhanwar kuan jhopda, originated from displacement/eviction of people from their original slums accounting for a total of 395 households. The main Ahirkhedi exists since 30 years, as two parallel lanes surrounded by these newly settled clusters. The slum has a vast expanse and stretches about a kilometer. The population is heterogeneous with respect to origin as there are nemaadis, pardhis, naaths, harijans and few other tribes. *There was no community meeting place until recently when the slum dwellers constructed a makeshift room with locally available material.* The nearest PHC (Hatod line) is about 10 km away. The two way transport expense comes to Rs 30.00. This is one of the extremely vulnerable slums owing to the lack of basic sanitary facilities, water supply (water is available on alternate days at the community tap), no community meeting space, no AWC amidst a very disabling environment. Certain pockets of the slum are affected by community violence and are difficult to reach. However, community groups are gaining momentum here and in the past few months have been able to extend reach of immunization services to certain left out pockets of the slum. There are four community based groups with at least ten members involved in health promotion activities.

##### **Annapurna thana basti**

The slum exists since 30 years surrounded by concrete structures. It is also known as Sudama Nagar. There are about 250 households located on one side of the main Annapurna road. These include 40-45 households situated remote to the main slum separated by a big "maidan". The population is homogenous with respect to origin as they are predominantly "nemaadis". There is a lot of movement of people during festive season in this slum especially of toy makers and other crafts persons who shift to neighboring villages where their creative work is in great demand. About 60% of the houses were found locked during the time span around Dusshera. *There is no community meeting place and most of the collective activities as well as immunization camps are organized in the porch of one of the basti CBOs home.* The basti CBO in consultation with the slum dwellers and ANM have decided on a time after 12:00 hours for providing immunization outreach as most of the women are occupied in some form of vocation in the morning hours. The nearest PHC (Rajendar Nagar) is 4 km away. The two way transport expense comes to Rs 12.0-14.0. The services of a private practitioner are closer at hand who provides immunization services every Sunday at a fee of Rs 20.00 per vaccination. This is one of the extremely vulnerable slums owing to the lack of basic sanitary facilities, water supply (water is available on alternate days at

the community tap), no community meeting space, no AWC amidst a very disabling environment. However, community groups are gaining momentum here and in the past few months have been able to extend reach of immunization services to certain left out pockets of the slum. There are two community based groups with at least eight members involved in health promotion activities.

### **Arjunpura**

Arjunpura is one of the two slums undergoing in situ development. The construction process for the 253 households situated on one edge of the "nallah", neighbouring Jawahar Nagar, was almost complete by October 2004; preference being given to the patta holders. Originally classified as a moderately vulnerable slum, it is yet to be understood whether this "development" improves the scenario in the slum. *The issue of relocating the AWC which functioned as a community meeting center as well as immunization site has to be resolved.* The nearest PHC at MOG line is about 1.5 km distance. There were 2 groups comprising 18 members, with at least 10 members actively involved in health activities. The groups have been disorganized due to the random shifting; it might take 2 -3 months for them to get together and spring back to action as in the case of Buddha Nagar.

### **Buddha Nagar**

Buddha Nagar is the other slum undergoing in situ development. Old hutments are being leveled to construct multistoried flats. About half of the 692 families had shifted to the flats by October 2004; preference being given to the patta holders. Originally classified as an extremely vulnerable slum, it is yet to be understood whether this "development" improves the scenario in the slum. People have already started expressing discontentment about the area and the construction quality. The AWC and the school, once in the center of the slum have become distant to the flats. *Since the AWC functioned as a community meeting center as well as immunization site, a new area in the center of the multi has been identified for these activities.* The families yet to shift are finding it difficult to access the new site and prefer to approach the nearer Rajendra Nagar PHC (about 1.5 km) for immunization and other health care. There were 2 groups comprising 18 members, with at least 10 members actively involved in health activities. The groups have been disorganized due to the random shifting; it might take 2 -3 months for them to get together and spring back to action.

### **Indrajeet Nagar**

This slum consists of 105 households situated on both sides of a "nallah". Slum dwellers are occupied in knife making and as vegetable vendors. There is no community meeting place and most of the slum based discussions and activities are organized in one of the basti CBO's house. Ruins of the Sulabh Shauchalya (Community toilet) remain in one corner of the slum. With no water supply its maintenance is difficult and people prefer to defecate in the open along the side of the "nallah". Health services are a little distant with the nearest PHC (Rajendra nagar) about 4

km away. A private Balwaadi runs in one of the houses. Categorized as an extremely vulnerable slum the community group consisting of 10 members has come together to make a difference to the slum situation. At least 3 members are actively involved in the health related activities

### **Jawahar Nagar**

The slum consists of 157 households located on one side of a "nallah" (open drain). The dwellers are predominantly "neemadi" with the exception of few harijan families. Most people work as construction workers and labourers. *The temple in the middle of the slum serves as the community meeting place as all residents are hindu and find this area easily accessible. It serves as the AWC as well as the immunization camp site.* At times community meetings take place in the basti CBOs residence at the entry of the slum. There are no community toilets but few families have constructed a common enclosed area for washing and bathing. The "nallah" serves as the open defecation area. There is piped water supply though erratic. Located on the main road the nearest PHC (MOG line) is about 1.5 km away. Jawahar Nagar was assessed as a moderately vulnerable slum during the assessment process conducted 2 years back. Though infrastructure has not improved much since then, there has been an upsurge in collective action and a feeling of belonging and working together for the slum. A CBO consisting of 10 members, 4 of whom are actively engaged in health improvement activities in the slum is steadily strengthening itself by improving linkages with the ward officer and the ANM responsible for outreach activities in their slum. Camps are held regularly and some breakthrough has been made at the slum sanitation front by allotment of bins from the ward office.

### **Mahadev Nagar**

The slum exists since 12- 14 years surrounded by three other slums. There are about 300 households located along the edges of the main road of the slum. The population is a heterogenous mix of atleast four different communities namely nemaadis, pardhis, harijans and banjaaras. The community demarcations are not very stark in Mahadev nagar; it displays good harmony in heterogeneity. Many slum dwellers are involved in agricultural and construction related activities and tend to toggle between the slum and native village or other cities for work. *The community hall at one end of this bifurcated slum serves as an AWC and immunization site.* The nearest PHC (Sindhi Colony) is 3 km away; the slum being situated about a kilometer inside the main Agra – Mumbai road. The two way transport expense comes to Rs 12.0- 14.0. Owing to the availability of a community meeting place, water supply and open field for defecation (in the absence of any sanitary facilities) Mahadev Nagar fared better in the vulnerability assessment as a less vulnerable slum. However, further improvements in community health required collective action which was a challenge considering the persistent inertia over time. As of now the slum can boast of two community groups with a total strength of nineteen members of which six are actively involved in health promotion activities. These groups are unique in having male involvement unlike any of the other CBOs.

### **Professor Colony**

Dwellers of Professor colony trace its history back to 30 years. It is situated near a busy square of the city known as "Bhanwar Kuan Chauraha". It has expanded to 142 households divided in two segments namely – Professor Colony (82 HH) and Vidya Nagar (60 HH). Professor colony section is predominantly occupied by the 'pardhi' community many of whom are rag pickers, beggars, snake charmers and body piercers. Due to their notoriety there is a strong prejudice against this community which is reflected in the general attitude of other slum dwellers towards them. Not surprisingly at all, this segment is more vulnerable than Vidya Nagar which is occupied by the "Nemaadis" who are involved in "clean activities" as laborers, vendors, mechanics etc. The vulnerability assessment approach categorized Professor Colony as an extremely vulnerable slum. There is no AWC, community/ individual latrine, poor drainage facility leading to frequent water clogging even in non rainy season and all hutments are temporary with no resistance against rains, storms etc. There are no open fields for defecation and hostility amongst the well to do families surrounding the slum is rising with use of neighboring spaces for washing and defecation. There are two community taps but water supply is erratic. Many a times the slum dwellers "buy" water from the well to do neighboring households. The nearest PHC, Sindhi Colony is at least a kilometer away. As of now there are two CBOs each having three active members. *The immunization camp is held at two venues to attend to the needs of both the segments of the slum. In professor colony it is an open-air camp at the point of entry to the slum; in Vidya nagar the shop of one of the active CBO members located at the main road of the slum is being used.*

Some of the key findings from the slum wise description above are provided in table 3.1.

Table 3.1 Profile of selected slums

S. No.	Slum name	No. of HHs	Vulnerability status	Distance of PHC	AWC	BCBO* members
1	Ahirkhedi (Digvijay Nagar + Nath colony)	395	Extremely vulnerable	10 km (Hatod line)	Absent	10 (4 groups)
2	Arjunpura	253	Moderately vulnerable	1.5 km (MOG line)	Present	3
3	Annapurna thana basti	236	Extremely vulnerable	4 km (Rajendra Nagar)	Absent	8 (2 groups)
4	Buddha Nagar	692	Extremely vulnerable	1.5 km (Rajendra Nagar)	Present	8 (2 groups)
5	Indrajeet Nagar	105	Extremely vulnerable	4 km (Rajendra Nagar)	Absent	3
6	Jawahar Nagar	157	Moderately vulnerable	1.5 km (MOG line)	Present	4
7	Mahadev Nagar	299	Less to Moderately vulnerable	3 km (Sindhi Colony)	Present	6 (2 groups)
8	Professor Colony	142	Extremely vulnerable	1 km (Sindhi Colony)	Absent	6 (2 groups)

\* Only members actively engaged in immunization related activities included

### 3.1.2 Profile of the study population

This section provides a profile of the study population that is, infants 2-6 months of age and their immediate family.

The distribution of study population was not very uniform with respect to age and sex with 56.5 % females versus 43.5% males; 54.4% in the age group of 2 – 3.9 months and 45.5% in the age group of 4 – 6 months.

Domiciliary deliveries were predominant in the study population (83.2%). Of the 84 cases born at home only 8 were delivered at the native village. Of the 17 institutional deliveries 11 were in government facilities. It is noteworthy that in Professor Colony, situated in the heart of the city only 1 of 11 deliveries were institutional. Mothers of one third of the study population were engaged in some form of livelihood activities.

Families of more than 90% of the study population were settled in the slum (present residence) for over a year. Despite the slum being their place of residence there is considerable movement of people or families in and out of the slums.

**Migratory trends:** Mass movement among particular tribes or sects like the *banjaras* and the *pardhis* is a part of culture and existence. Two slums in the study namely Mahdev Nagar and Ahirkhedi are predominantly occupied by the *pardhis*. In Mahadev Nagar as many as 35 families had migrated during the study period. The labourer class also follows mass migration associated with income generation. When work prospects are bleak in the city, contractors offer them work in bigger cities where daily wages are much better and in anticipation of better earnings the entire community may be hired and taken off to cities like Mumbai or Delhi.

Families who have a regular income slowly leave the more vulnerable slums to those with better facilities. They are generally on rent and can now afford to pay higher rentals or even get a patta or legal hold on land. Some families have left a slum to shift into a new one due to constant pressure from unwanted elements or the general violent atmosphere of the slum. Many artisans and toy makers leave their slums to sell toys/ gifts in the villages where there is a great demand for these hand made toys during various festivals at different times in the year. During the study up to 60% of the families in Annapurna thana had shifted temporarily to villages for this purpose. Many a times family are unavailable in Indore slums during festivals particularly Navratre and Gangaur puja as these are definite occasions for visiting the native village.

The information on the profile of the study population slum wise is presented in table 3.2.



Table 3.2 Profile of the study population

Slum Name	Total cases	Sex		Age (months)		Place of Birth		Mother's occupation		Duration of stay in the slum	
		M	F	2 – 3.9	4 – 6	Home*	Inst.#	House wife	Daily wager	< 1yr	> 1yr
Ahirkhedi (Digvijay Nagar + Nath colony)	21	7	14	12	9	18	3	15	6	2	19
Arjunpura	12	4	8	9	3	9	3	8	4	-	12
Annapurna thana basti	15	7	8	7	8	11	4	8	7	-	15
Buddha Nagar	14	8	6	9	5	10	4	12	2	2	12
Indrajeet Nagar	3	2	1	1	2	3	-	3	-	1	2
Jawahar Nagar	10	6	4	8	2	10	-	7	3	-	10
Mahadev Nagar	15	3	12	7	8	13	2	11	4	1	14
Professor Colony	11	7	4	2	9	10	1	7	4	1	10
<b>Total (percentage)</b>	<b>101</b>	<b>44 (43.5.)</b>	<b>57 (56.5)</b>	<b>55 (54.5)</b>	<b>46 (45.5)</b>	<b>84 (83.2)</b>	<b>17 (16.8)</b>	<b>71 (70.2)</b>	<b>30 (29.8)</b>	<b>7 (6.9)</b>	<b>94 (93.1)</b>

\* Slum or village

# Govt. or private facility

### 3.1.3 DPT I and III immunization status of the study population and associated factors

The analysis of age appropriateness of DPT I defined as receipt of first dose of DPT by completion of two months<sup>8</sup> of age was conducted on the entire study population of 101 infants while for age appropriateness of DPT III defined as receipt of third dose of DPT by completion of four months of age was applicable for 46 infants in the age group of 4 – 6 months. Information on age of receipt of immunization was based on immunization card details, CBO records and mother's recall. In the total sample of 101, cards were available with 60 infants (about 60%). Of the remaining 41, there were only 2 infants for which information from the mother's recall could not be confirmed with CBO records.

The age appropriateness of DPT I were investigated in context to variables of sex, source of immunization service, mother's employment amongst others. For DPT III the findings were analyzed in context to DPT I status.

#### Findings for DPT I

**Total coverage and Age appropriateness:** The total sample consisted of 101 infants of which 36 received DPT I on time, 37 received it after completion of 2months of age and 28 had not received the first dose till completion of the survey. Hence the total coverage for DPT I was 72.3 % (73 out of 101) while 35.6 % (36 out of 101) received DPT I appropriate for age.

<sup>8</sup> The official government schedule and the Indian Academy of Pediatrics guidelines define 1½ months as the appropriate age for DPT I. Giving an allowance of 15 days for delays in organization of amps, logistic difficulties, social/ family events, the study considered 2 months as the cut off date.

**Analysis based on sex of the child:** Amongst the total DPT I covered infants, (that is, 73), 32 were males and 41 were females. Thus, total coverage was not very different for males and females at 72.7 % and 71.9 % respectively.

Table 3.3 DPT I status with respect to sex

DPT I status		Sex	
		Male	Female
Timely	36	14	22
Delayed	37	18	19
Not received	28	12	16
<b>Total</b>	<b>101</b>	<b>44</b>	<b>57</b>

In the small group of 36 infants receiving DPT I on time there were 14 of 44 males and 22 of 57 females resulting in slightly higher proportion of females receiving timely DPT I at 38.6 % vis-à-vis 31.8 % amongst males. A gender bias is not evident in the present context albeit a detailed analysis of factors such as parity, economic status of the family and other contributing factors; beyond the scope of the present study, may be needed to arrive at a conclusion.

**Delayed receipt of DPT I and non-immunization:** The point worth consideration in this analysis is that of the 28 infants who did not receive DPT I, there are only 8 in the 4 - 6 month category. Thus there is still an opportunity to identify the reasons for non-receipt and follow up with these 20, 2-3.9 months old, non immunized infants to ensure administration of future vaccines without further delay.

Table 3.4 DPT I status with respect to age

DPT I status		Age (months)	
		2-3.9	4-6
Timely	36	19	17
Delayed	37	16	21
Not received	28	20	8
<b>Total</b>	<b>101</b>	<b>55</b>	<b>46</b>

**Source of immunization services:**

Outreach camps - Providing immunization services home to home is not an operationally feasible option for ensuring complete immunization coverage efficiently. As is evident from the findings home visits though made by the ANMs are more for registering eligible children and convincing mothers to get the child to the camp rather than providing vaccination there and then. The basti CBOs have supported the ANM by taking over this task almost completely. The ANMs visit a household only in cases where the basti CBO finds it exceptionally difficult to get the mother to immunize the child.

The study population almost completely depended on the outreach camps organized in the slum



for immunization services. This is encouraging and reiterates that there is no fear or inertia in availing immunization services when these services are available closer to home. On the flip side complete dependency on the slum level camps also indicates that any unprecedented irregularity in organization of camps owing to illness of the health care provider amongst other reasons or misinformation about camp dates

(particularly in the present context as camp days are not fixed) may lead to delay in receiving necessary immunization. Also, regular outreach activities though the mandate of the public sector requires commitment and sustained efforts from the public sector health staff which would depend on a conducive work environment not plagued by administrative and managerial problems.

Fixed facility (PHC) – Usage of PHC for immunization services is low. The cost of availing the service from a PHC may be quite high in slums like Ahirkhedi<sup>9</sup> from where the nearest rural PHC is about 10 kms. The transit cost itself may range from Rs 15- 20. However, in most other slums the PHC is within 2-3 kms of the slum. There is a need to promote use of this facility especially when the child misses the due dose at the monthly slum camp. Usage of fixed facility endows various benefits to the seeker/ client such as more organized and regular service delivery, availability of all vaccines and exposure to other health services available at the fixed facility such as ANC check ups.

Table 3.5 Sources of DPT I immunization receipt

DPT I status		Place of receipt			
		Home visit	Camp	PHC	Private
Timely	36	0	33	3	0
Delayed	37	0	35	2	0
<b>Total</b>	<b>73</b>	<b>0</b>	<b>68</b>	<b>5</b>	<b>0</b>

Private providers - Since, the private providers are not visited for seeking immunization services as they generally do not offer routine immunization services and are expensive for preventive services, their involvement in effective counseling needs to be explored rather than in service delivery. Though not investigated in this study, evidence from situation analysis and participatory enquiries conducted in 2002 and 2003 respectively revealed faith of slum dwellers in private providers for curative services. There may be a possibility of persuading private practitioners approached by the slum dwellers, to provide immunization related counseling to pregnant women and mothers' of eligible children.

<sup>9</sup> Ahirkhedi is a relocated slum situated in a peri-urban part of the city. The nearest health facility is the rural PHC (Hatod).

**Mother's employment and DPT I immunization status:** In the total sample mothers' of 30 infants were involved in income generation activities of which 9 infants received DPT I on time, 13 were delayed and 8 did not receive DPT I.

Table 3.6 DPT I status with respect to mother's employment

DPT I status		House wife	Employed
Timely	36	27	9
Delayed	37	24	13
Not received	28	20	8
<b>Total</b>	<b>101</b>	<b>71</b>	<b>30</b>

The reasons for delayed receipt among children of working mothers revolve around the timing of camps which will be detailed in later sections. More disconcerting is to note that 28% of the infants whose mothers' are house wives, and assumed that they are always available to attend to the infants's needs, had not received first dose of DPT. The reasons for this were investigated during the FGIs.

**Place of delivery and DPT I status:** The findings indicate that 47 out of 76 infants born in the slum were not immunized on time. Of the 17 institutional deliveries, both in private as well as government facilities only 5 cases had received DPT I on time. This poses a challenge for the basti CBOs to develop mechanisms to track all cases whether born at home or in an institution as ultimately most if not all of them would depend on the slum level immunization camps for availing services.

Table 3.7 DPT I status with respect to child's place of birth

DPT I status		Place of birth			
		Slum	Village	Govt	Private
Timely	36	29	2	2	3
Delayed	37	29	3	4	1
Not received	28	18	3	5	2
<b>Total</b>	<b>101</b>	<b>76</b>	<b>8</b>	<b>11</b>	<b>6</b>

This may not appear difficult as basti CBOs build contact with pregnant women and continue to follow them post delivery. However, with the large numbers and the continuous influx and outward movement of people registering all births is a herculean task.

### Findings for DPT III

The findings indicate that 39% of the infants received DPT III before completion of 6 months of age of which 22% received it on time. Of 17 infants receiving DPT I on time 10 received DPT III by completion of 4 months. Many of these delays occur because while the camps are held monthly the day/ date is not fixed.

Table 3.8 DPT III status with respect to DPT I status

DPT I status (4-6 months age group)		DPT III status		
		Timely	Delayed	Not received
Timely	17	10	2	5
Delayed	21	0	6	15
Not received	8	0	0	8
<b>Total</b>	<b>46</b>	<b>10</b>	<b>8</b>	<b>28</b>

Eg Baby Rani received DPT I at the age of 2 months on 4<sup>th</sup> September, 2004 in the camp organized in Jawahar Nagar. In the month of November the immunization camp was held on the 20<sup>th</sup> by which Rani was 4 months and 16 days.

Two issues arise a) Most delays in DPT III receipt despite timely initiation of DPT series are due to camps not being on fixed days/ dates. b) The fluctuation in camp days/ dates leads to inconsistent intervals between two doses of DPT ranging anywhere between 20 days to 45 days.

Limitation: The study included infants between 2 to 6 months age only. Consequently, the age span for investigating DPT III coverage was only 2 months ie the age group of 4-6 months compared to 4 months for DPT I ie 2-6 months. There is a possibility that a few more infants would have received DPT III over the next two months ie 6-8 months.

Other factors are discussed in the next section on reasons for delayed or non receipt of DPT immunization.

### 3.2 Reasons for delayed and non receipt of DPT I and/ or DPT III immunization

Reasons for non timely immunization for DPT I were derived from the focus group interviews (FGIs)<sup>10</sup> with a) mothers/ care takers of delayed or non users of DPT I and b) the basti and lead CBOs. Information on reasons for delayed DPT I immunization obtained from the individual interviews in the rapid survey (October – November 2004) to assess DPT I and III immunization status of infants (2-6 months) formed the basis for further detailed investigation of causes for delayed or non receipt of DPT I through FGIs. Reasons for non timely or non receipt of DPT III have been derived from the individual interviews in the rapid survey.

#### Reasons for delayed and non receipt of DPT I

One FGI was conducted in each of the eight study slums in which mothers' of 36 of the 65 infants who reported delayed or non receipt of DPT I participated. Since more than 50 % of the sample was covered the findings can be generalized to all the infants. Responses of basti CBO, lead CBO and other non target group participants were reported separately with the purpose of supporting and confirming the overall findings. Broadly the reasons for delayed or non receipt of DPT I can be categorized as information constraint, social constraint, economic constraint and supply/ service constraint.

**Information constraint** – This included the following reasons:

- *Not aware about the importance of age appropriateness of immunization* – Most mothers were well informed of the benefits of immunization and in favor of getting their children immunized. But dose and timing related information about different vaccine was not known. Almost all mothers were unaware about the significance of repeat visits to ensure complete immunization. They availed immunization services when basti CBO informed them about the due or pending doses. Some mothers considered that when the baby is small s/he should not be immunized; though they could not define how old the baby should be for her/ him to receive immunization.
- *No or incorrect information about immunization camp date and venue* - The basti CBO inform all the identified cases at least 2 days before the immunization camp. Very few mothers particularly newer migrants reported the lack of information about camp dates as a reason for non immunization of their child. Basti CBOs generally do not register children of new migrants until it is certain that the family would reside for a considerable period of time.

<sup>10</sup> Focus Group Interview (FGI) is a semi-structured discussion of a given topic by a homogeneous group of 6-10 individuals. The term “semi-structured” suggests that the discussion is not as rigidly controlled as an interview using a standardized questionnaire, but neither is it an unstructured conversation. – Aube J, 1994. *Guidelines for studies using the group interview technique. Training papers in Population and Family Welfare Education in the Worksetting Paper No. 2. World Employment Programme.*

Members of basti CBO reported that many a times mothers tend to forget when informed in advance without reiteration on the camp day. Some slums like Ahirkhedi have such a vast expanse that it is not possible for the basti CBO members to revisit all the target families as well as support the ANM at the camp site on the day of the immunization camp.

- *Misinformed about adverse effects of immunization* – In a few cases the older sibling suffered a mild fever post immunization which led the family to believe that a young infant should not be immunized. Almost all mothers believed and practiced that children should not be immunized even when mildly ill.

**Social constraint** – A marked feature of urbanization has been the loss of social fabric; particularly among the urban poor for whom the struggle of existence in the debilitating slum environment and the constant threat of eviction leaves no room for breeding companionship with unknown neighbors. Very few are fortunate to live in the vicinity of relatives or in friendly neighborhoods.

#### Migration related constraints

- *Weak networking of new migrants* – Most of the migrants in the study sample were first generation city dwellers shifting base from their native village into the slum. These mothers were aware about immunization services but made no attempt to find out about services available in and near the slum due to the more pressing issues of adapting to the slum environment. Also as stated above though the benefits of immunization are known the necessity of complete and timely immunization is not. By the time they familiarize with the neighborhood the infant has well past the ideal age for DPT I. Thus a case of delayed or non receipt of first dose of DPT arises.
- *Delivery related migration and low demand for immunization services* – The lack of support as well as the economic pressure of bigger family results in movement of many pregnant women from the slum to native village in the third trimester. They may return 34 months post delivery. Since immunization services are easily available in the slum and the basti CBO ensures its reach the mother is unable to demand these services in the village.
- *Migration related to festivals and social events such as marriage, death etc which are common in slums make it difficult for the basti CBOs to track these cases*

#### Other social constraints

- *Working mothers have no social support* – Employed mothers either carry the infant to work or leave them to be attended by older sibling. She may not find an adult to take responsibility of the child's immunization or other health needs when she herself is unable to postpone or cancel work for that particular day.



*An infant being attended by older siblings*

- *Conflicts with customs and tradition* – This is pertinent for a very small section of the cases. There is no faith in immunization among some tribal sections, *pardhis* in particular, who have refrained from availing any health intervention for ages. However, beliefs and practices are changing. Gaja bai's success story is a befitting example of the changing times.

Gaja bai is a recent migrant to Indore and has been staying in Mahadev nagar for not more than 1 year. She has 7 children, none of them immunized with the exception of the recent born girl child. Gaja bai feared immunization like many of her "*pardhi*" community members, to the extent that she kept shying away on immunization camp days in the slum, escaping the eyes of CBO members who might take the child to the camp by force. The CBO members were made to believe that she is not in the slum by her husband and neighbors. Finally she was spotted by the lead CBO who tried to persuade her to get the newborn immunized. After many failed attempts her relative from the native village arrived and learnt about the situation. Equipped with information about the benefits of immunization she along with the basti and lead CBO members convinced Gaja bai to get the child immunized. Seeing no adverse effects and gaining understanding on how her other children are threatened because of being non-immunized, Gaja bai has now become a front runner in promoting immunization awareness among her community members.

**Economic constraint** – The organization of camps in the slum has greatly reduced the cost of availing immunization services. The total expenditure per vaccine is not more than Rs 3.00 (cost of syringe) in a camp as compared to Rs 20 -25.00 from a distant health facility (PHC). Only one mother reported that the cost of immunization prevents her from getting her child immunized in the camp. The basti CBO reported that in some cases they bear the cost to ensure that the child receives necessary vaccination on time.

However, the opportunity cost that is, losing a days wage to get the child immunized for a working mother is still high. Though the waiting time in a camp is less than in the PHC, the timing of the camps make it difficult for the mother to pursue work that day. In some slums like Annapurna thana basti the camp timing has been adjusted to the needs of working mothers.

**Supply/ Service constraint** – The reasons related to service constraint were stated mostly by the basti CBO members who have to interact with the ANMs for seeking confirmed dates of camps and making necessary arrangements. The fact that the mothers of non-immunized infants did not report any reason associated with quality and regularity of services further confirms the low demand for services amongst communities. CBOs reported the uncertainty about camp dates (as these are not fixed) an obstacle in ensuring smooth implementation of their tasks of informing target population and organizing camp site. Particularly during pulse polio and RCH trainings due to the preoccupation of the ANMs the camps are postponed or even cancelled. Alternate arrangements though made such as inviting a private nurse to administer vaccines are not possible without the NGOs support; also, not a sustainable option.



### **Reasons for delayed and non receipt of DPT III**

*Reason for delayed or non- receipt of DPT III when DPT I is on time* – The reported causes are related to frequent movement between slum and native village and low priority to timely immunization. Mothers do not attempt gaining information about service providers and getting her child immunized in the village. The family depends on the outreach camp in the slum for these services and vaccination is received on arrival to the slum. In many cases the infant's state of ill health on the camp day and family's fear that immunization may aggravate the condition prevented mothers from seeking immunization services for the infant. There is a common mistaken belief amongst the community and at times the service provider that infants should not be immunized even in mild illness. The service providers are apprehensive in immunizing the infant against the family's consent.

*Reason for delayed receipt of DPT III when DPT I is also delayed* – The obvious cause is the delayed initiation of DPT series. It may be reiterated that little or no significance is associated with timely immunization.

### **Special situations specific to slums**

Two of the study slums, Buddha Nagar and Arjunpura, are in the process of in situ development whereby the slum dweller's shacks and hutments are being replaced by concrete multi-story housing. In situ development prevents displacement of people but does not necessarily mean a smooth transition into a better life style. During the period of the survey there was unrest and dissatisfaction amongst the dwellers of Buddha Nagar over the quality of construction and the difference in the actual versus the proposed area of flats allotted to them. Program activities suffered a setback due to preoccupation with shifting related issues. Buddha Nagar had the highest proportion of cases of non receipt of DPT I (7 out of 14) in the entire study sample.

There was disorganization of the basti CBO as with new dwellings came new neighbors and different target groups which were unknown to a particular member of the CBO. Also it required time to adjust to the new area of work "*from the lanes to the staircases*" and forging new linkages. The immunization site which was the AWC located in the center of the slum now shifted to a basti CBO's flat. People yet to shift into the multi were too distant to this new immunization site and never managed to get information about the organization of camps.

## Chapter 4 Discussion and Program Implications

### 4.1 Barriers, Facilitators and Options for addressing factors associated with delayed and non-receipt of DPT I and/ or DPT III immunization

The reasons for low age appropriate immunization coverage revolve around irregular reach of services and inertia in availing immunization services. However, there are many facilitators such as mothers' willingness to avail immunization services when easily available, presence of a network of basti CBOs amongst others. Below is a tabulation of barriers/facilitators/options for improving age appropriate immunization, as identified in this study.

Barriers	Facilitators	Option
<u>Low awareness about exact age for necessary immunization</u> - No concept of timely immunization and unawareness about necessity of repeat visits to ensure complete immunization among community.	No opposition to immunization as a life saving and health promoting intervention (except certain tribes, <i>pardhis</i> or in cases where older sibling suffered an adverse reaction). Mothers willing to get child immunized at camps when informed by basti CBO member.	Counseling mothers on benefits of complete and age appropriate immunization rather than restricting to benefits of immunization only. During face to face interactions the immunization schedule may be discussed repeatedly and demystified for the mother. For special cases of mistrust in immunization services reasons need to be identified and addressed using appropriate means. <i>Pardhis</i> should be represented in the basti CBO.
<u>Community's fear of immunizing child in mild illness or "small" baby;</u> providers hesitant to immunize child when family opposes.	Community's faith in medical professionals (private and public) and openness in communicating their fears may aid effective counseling.	Invitation to medical professionals to attend and address mothers concerns about immunizing the child at community events. Single cases may also be identified for inter personal counseling. There is a possibility of identifying role models ie women who have successfully immunized children in spite of child's illness for motivating "non users".
<u>Temporary migration out of the slum,</u> related to pregnancy, social events, seasonal movement etc results in failure to	Basti CBOs have prior information about pregnant women, families or groups moving out of the slum.	Meetings with identified women prior to migration to inform about services available in the village / new city reiterating the benefits of complete immunization and carrying the

continue utilizing immunization services.		immunization card. Male members of the migrating families may be informed of due vaccinations and sources available.
<u>Children of working mothers are left out</u> as they may carry the baby to work or are unable to postpone work to attend to child's health needs.	Since most mothers have immunization cards there is a possibility of availing services from a PHC/ fixed facility near the slum or work place. Basti CBOs can take responsibility of getting the child immunized in certain cases.	Prior information about camp dates is provided. The mother should be encouraged to postpone work for that day. If the baby is carried to work then basti CBO should get information on timing of immunization services at the PHC nearest to the mothers work place from the Lead CBO and encourage her to carry the immunization card and avail services there.
<u>New migrants</u> in the slum have a weak information and social network; basti CBOs do not register new migrant's children immediately.	Though not registered, the Basti CBO has a network that enables them to identify the entry of new migrants into the slum.	Basti CBOs have to make registration of new migrants similar to their routine registration and ensure active follow up of these cases. There is a possibility of involving neighbors in this process.
During <u>evictions and resettlement</u> utilization of health services take a back seat; community groups are disintegrated.	Basti CBOs maintain an immunization record of all the target population. Thus enabling follow up once services regularize (even if immunization card is misplaced during shifting).	NGO and Lead CBO may obtain house allotment list to identify the new locations of the basti CBO members and help them to re-organize. Basti CBO members should be introduced to the entire target population beyond their lanes or areas of work so that it is easier to forge linkages with the new neighboring target population arising due to jumbling of population.
<u>Camp dates not fixed</u> ; irregularity of ANMs during National/ State events	Events such as pulse polio are planned much in advance	Forums for public health providers and NGO/ CBO members to discuss concerns and resolve conflicts need to be created. If possible a quarterly meet resulting in plans for the next quarter should be effective in regularizing outreach activities.

### **Possible options for improving age appropriate immunization in the Indore Urban Health Program**

#### A) Improving reach of services

- NGO-CBO need to negotiate with health ANMs, for conducting camps on “well informed” fixed days/dates.
- Representation of all groups present in the basti (including tribal groups), in the basti CBOs needs to be ensured.
- Basti CBOs should make registration of new migrants similar to their routine registration and ensure active follow up of these cases.
- Basti CBO members should be introduced to the entire target population of the slum beyond their lanes or areas of work so that it is easier to forge linkages with the new neighboring target population arising due to jumbling of population in in-situ development. Mapping the target population on a monthly basis on basti maps may be an option.
- Forums for public health providers and NGO/ CBO members to discuss concerns and resolve conflicts need to be created. If possible a quarterly meet resulting in plans for the next quarter should be effective in regularizing outreach activities.

#### B) Improving service seeking behavior

- Mothers need to be counseled on benefits of complete and age appropriate immunization rather than restricting to benefits of immunization only during group counseling sessions.
- Individual counseling for cases of strong opposition against health interventions should be planned and executed at the earliest.
- Provision of immunization cards to all pregnant women/ eligible children and encouraging mothers to carry it along when migrating to a new area needs to be ensured.
- Working mothers need to be encouraged to postpone work on camp days when providing information about camp details in advance and promoting use of fixed facilities as it endows advantages of regular services, exposure to varied health services such as ANC check ups etc.
- Invitation to medical professionals to address mothers concerns about immunizing the child at community events is a possibility.

## Chapter 4 Discussion and Program

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### 4.2 Implications for other programs focusing on health/ immunization services in slums

#### Implications

- Building collective capacity and strength among slum communities - For any health program to be sustainable there is a need to build the social infrastructure. People's ability to negotiate for health services can be increased through collective, organized effort, once they are equipped with information on needs and provisions.
- Evolve a functional community- provider linkage - A functional linkage of communities with available and authentic health service providers needs to be facilitated through regular dialogue and reaching consensus on roles and responsibilities.
- Recognizing and encouraging champions within health systems - The urban health systems are generally weak. The medical officers, ANMs, LHVs and other health workers who work tirelessly, despite scarcity of resources, need to be constantly encouraged and recognition given to their efforts. The morale of those who have been able to contribute towards society needs to be boosted and sustained, so that similar process of delivering services continues and they become champions for many others.
- Help slum dwellers develop contingency plans for evictions and relocations - Slum dwellers frequently face challenges of eviction and relocation. A plan to overcome the barriers in reaching health services during such contingencies needs to be ever-ready with the health providers and community leaders/ groups.
- Special program strategies for temporary migrants - An important challenge in planning and delivering health services in urban slums is the mobility of population. Slums also witness temporary migration for certain months of the year, particularly around harvest season. It is common for most slum women to go back to their native villages for delivery. Such movements make the process of maintaining client lists and following up of such clients by health workers complicated. Behavior promotion activities also get disrupted because of such movements. It is necessary to factor in the rapid mobility of population in slums while planning for health services in slums. Steps to make the services reach the migrant population could include (i) distribution of pictorial cards among migrants which emphasize desirable behaviors and which can be used at health facilities at the place of destination (ii) sensitizing health providers to offer services even temporary migrants without discrimination (iii) encouraging temporary migrants to avail services from nearby health facility after they return to the slum even if camp has been already held.

# Selected References

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## Chapter 1

### 1.1

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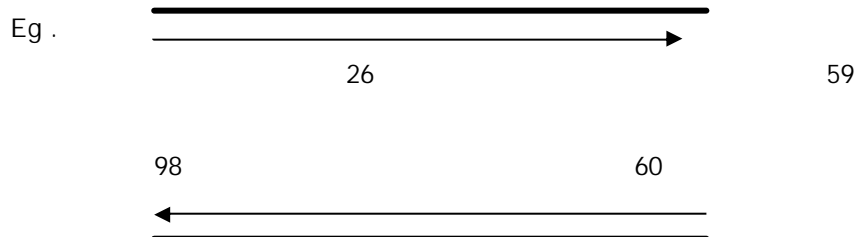
## Annex1 Ready reckoner for data collection teams

### Remember to carry:

- List of randomly selected household for your designated basti.
- 4-5 A4 size sheets for rough sketch of the basti.
- Calculated number of rapid survey formats and group meeting recording formats.
- A set of two pens and pencils.
- 7-8 white chalks.

### Process to follow on day one:

- Prepare slum map with lanes, landmarks and far off hamlets in consultation with the lead and basti CBO (1 hour)
- Identify a lane randomly using the currency note technique; start counting and numbering households on ruled sheet from one end of this lane excluding structures other than dwelling places (also referred to as households)
- Mark the direction you are following (always go clockwise ie to your right) as well as the starting and ending household number of that particular lane on the map. Donot put any other number or marking on the map



- Identify a household from your slum list as first and follow the map to cover all houses. Mark the number of the house with the target child with the chalk on the wall of the house.
- If the house is vacant approach the next house to your right.
- If there are two families in one house then interview both.
- If there are two mothers in the same house then also interview both.
- After the enquiry mark + if 2 – 6 months old child was present, ++ if child had received DPT 1 by 2 months and ± if the child did not receive DPT 1 by 2 months.
- Confirm with the mothers from ± households to attend group meeting the next day at a pre decided time and venue convenient to slum dwellers (You can ascertain this from the basti CBO).
- After completing enquiry (based on the rapid survey format) in each lane verify with slum list and map whether the houses visited are correctly marked.
- At the end of the day compile data on a spread sheet.
- Preserve the maps and slum lists for endline rapid survey.

### Process to follow on day two:

- Verify and fill any gaps from the previous day
- Identify and request mothers from ± households to attend group meeting.

- Facilitate group meeting (one of you will record information on the formats provided to you)
- Return to office for compiling information from the survey and group meeting
- It is each team's responsibility to provide correctly completed survey and group meeting formats to the survey coordinator on the day following the completion of data collection.



Annex2 Immunization rapid survey format for assessing DPT I and DPT III status of 2-6 months old children by completion of 2 and 4 months respectively

<b>Childhood DPT I and III immunization status rapid survey – Indore</b>		
Name of the basti: _____		
Names of the survey team members: _____		
Date of the survey: _____		
	Encircle relevant code	
1. House No. (as per detailed slum list): _____		
2. Child's Name: _____		
3. Child's Sex: _____	1 (Male) 2 (Female)	
4. DOB [Confirm later from immunization card or ask in which month the child was born or associate it with a festival. Important festivals between April to September –Baisakhi (13 <sup>th</sup> April), Milad-ul-nabi (3 <sup>rd</sup> May), Raksha bandhan (30 <sup>th</sup> August), Janmashtmi (7 <sup>th</sup> Sep), Ganesh Chaturthi (18 <sup>th</sup> Sep), Anant Chaudas (27 <sup>th</sup> Sep), Shabbe baraat (30 <sup>th</sup> Sep) ] _____  Child's Age <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 100px; height: 20px;"></td></tr></table> (Please give reason of how approximate age was arrived at _____)		1 (2 – 3.9 months) 2 (4 – 6 months)
5. Place of delivery: 1) Home Slum                                  ? Native village                      ? 2) Government facility              ? 3) Private facility                      ?	1 (Slum) 2 (Village) 3 (Govt. facility) 4 (Private facility)	
6. Father's Name: _____		
7. Mother's Name: _____		
8. Duration of stay in this slum: _____	1 (< 1yr) 2 (> 1 yr)	
9. Father's occupation: _____	1 (Regular) 2 (Irregular)	
10. Mother's occupation: _____	1 (Regular) 2 (Irregular) 3 (Housewife)	

11. Immunization card 1. available: _____ 2. updated : _____ (Implies duly filled with no obvious incorrectness of dates) 3. not available: _____	1 (available) 2 (updated) 3 (not available)
12. Date of receipt of DPT I (immunization card/ recall): _____ Age of receipt: <input type="text"/>	1 (card) 2 (recall)
13. DPT I status a. Timely receipt (within completion of 2 months) ? b. Delayed receipt (beyond completion of 2 months) ? c. Non receipt ?	1 (Timely) 2 (Delayed) 3 (Not received)
14. Who provided immunization service? 1) House visit by ANM ? 2) Outreach Camp ? 3) PHC- Government hospital ? 4) Private facility ?	1 (House visit) 2 (Camp) 3 (Government) 4 (Private facility)
In case of recall information ask the no. of shots received and the site of administration (DPT will generally be administered on the outer part of thigh) Also confirm whether the child was sick before the immunization to verify that it was routine immunization and not treatment based.	
15. Reasons for delayed or non immunization:	
16. Date at receipt of DPT III (for 4 – 6 months age group)- (Card or recall) _____ Age of receipt: <input type="text"/>	1 (Card) 2 (Recall)
17. DPT III status 1. Timely receipt (within completion of 4 months) ? 2. Delayed receipt (beyond completion of 4 months) ? 3. Non receipt ?	1 (Timely) 2 (Delayed) 3 (Not receipt)
18. Reasons for delayed or non immunization of DPT III	

## Annex3 Focus group interview guide and probes for identifying reasons for delayed or non receipt of DPT I

### Some tips for facilitating a focus group interview

#### **Step 1: Start with an Introduction**

Give the Facilitator's and Observer's name.

#### **Step 2: Give purpose of the focus group interview**

We wish to learn from you about immunization status of children and facilities/ providers in your community and your opinion on the same.

#### **Step 3: Mention that there are no right and wrong answers**

We would just like to know about your opinions on this subject. There is no right or wrong answer to any of the questions. This is no test. We just want to learn from you.

#### **Step 4: Give length of time the focus group interview would take**

The discussion would take about an hour.

#### **Step 5: Inform them about talking to one another**

As we will be discussing about each of your experiences, it will be important that we do not talk at once because we will want to hear each other so we should not talk together. Every body should participate and every body will be given a chance to put forth their views. If you have any queries they would be addressed at the end.

#### **Step 6: Explain note taking confidentiality**

Observer/reporter's will be writing down some of the things that we will be saying so we can remember later. Does anyone object? We are the only ones who will know your names, we will not use any names in our reports.

#### **Step 7: Check understanding and clarify**

Do you all understand what I have said? Do you all have any questions?

It is important to have a male member in the facilitators group to attend to the queries of the curious men/boys and capture their interest. They may otherwise disrupt the enquiry and prevent women from participating.

#### **Step 8: Participants introductions (Warm up)**

Please introduce yourselves and tell us the trimester of pregnancy you are in.

#### **Step 9: Lets begin**

We would start by sharing what preparations each of you have made for delivery and newborn care. Follow the questions given in the FGD guidelines.

#### **Step 10: Ensuring participation**

All participants should be involved in the process; if the group is too large then form subgroups to engage all the participants before or during the process of enquiry.

#### **Step 11: Give a Summary**

Mention main themes discussed and participant's responses. Ask, is there anything else that we talked about that I forgot to mention?

### **Step 12: End with a Closure**

Thank you for your time. Do you have any questions that you would like to ask? I am not sure that I will be able to answer all of them, but I will try (Record all questions. Do not lecture).

#### **Probes for identifying reasons for delayed or non immunization for DPT I**

- Discussion on benefits of immunization and its age appropriateness
- Myth, fear and social practices – probe for family's opinion about childhood immunization particularly that of mother-in-law and husband, customs that discourage immunization of children, mother's earlier experience of getting child immunized etc
- Service delivery related – probe for sources of availing immunization services and reasons such as cost, quality, support etc., issues about working mother's convenience in using immunization services

Annex4 Reporting format for focus group interview with mothers of delayed or non users of DPT I

**Basti Profile**

**Participant profile**

Total number of participants

No. of mothers whose child has not received DPT I

No. of mothers whose child has received DPT I after 2 months of age

Average age of mothers

Occupation:    Housewife    \_\_\_\_\_  
                     Daily wagers    \_\_\_\_\_  
                     House maids    \_\_\_\_\_  
                     Any other    \_\_\_\_\_

**Reasons for delayed or non immunization**

<b>Reasons (observations, remarks and anecdotes)</b>	<b>Number of respondents stating reason</b>
Reason 1	
Reason 2	
Reason 3	
Reason 4	
Reason 5	
Reason 6	

**Any other observation**

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