rachna program
2001-2006

women and child health at scale

working paper series

paper2

methods used for assessments in the rachna program

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Methods Used for Assessments in the RACHNA Program

Background

The RACHNA program of CARE India included two USAID-supported projects: the second phase of Integrated Nutrition and Health Project (INHP-II), which focused on child health and nutrition, and the *Chayan* Project, which supported interventions for promoting birth spacing and the prevention of transmission of HIV/AIDS among groups at high risk. INHP-II, built upon the lessons and experiences of the first phase, was implemented in 747 Integrated Child Development Services (ICDS) blocks[1] in 78 districts across nine states[2] from October 2001 to December 2006 to complement the maternal and child health and nutrition (MCHN) efforts of the ICDS and the Ministry of Health and Family Welfare (MoHFW) programs. To achieve its goal of "sustainable improvements in the nutrition and health status of seven million women and children", INHP-II adopted a two-track approach – supporting service providers to improve the quality and coverage of MCHN services and systems and engaging communities to support better infant feeding and caring practices and sustain activities for improved maternal and child health and survival. The implementation was facilitated by small program teams of CARE, located at the district, state and national levels, and working closely with the functionaries of the ICDS program and the programs of the MoHFW, along with a range of partners, including local NGOs and Community-Based Organizations (CBOs). The main strategies were strengthening of existing systems, behavior change, communication and capacity building. A detailed description of the program can be found in the paper, *Program Description,* in this series.

Over the life of RACHNA, three sets of population based surveys were conducted:

- Program wide baseline and endline surveys for INHP-II and *Chayan* to assess program performance;
- Rapid Assessment Surveys (RAPS) in a sample of one district, referred to as a panel district, in each of the INHP-II program states to study the effect of program processes on outcomes and provide the lessons needed to inform further refinements to implementation approaches and mid-course corrections;
- Two Evaluation Research studies with a pre-test, post-test, quasi-experimental evaluation design in two program states, Uttar Pradesh and Andhra Pradesh, respectively, to test the effectiveness of the package of the INHP-II interventions in reducing malnutrition and infant mortality.

This paper describes the methodology of these surveys, briefly compares the methods used in these surveys with other large scale surveys such as the National Family Health Survey (NFHS), the District Level Household Survey (DLHS)/Reproductive and Child Health Survey (RCH) and the Coverage Evaluation Survey (CES), and discusses methodological issues relevant to the analysis used in this series of working papers.

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[1] A block is an administrative sub-unit of a district, having a population of around 100,000, and often larger. An ICDS block is usually identical to the administrative block, and comprises about 100 *Anganwadi* Centers (AWC). Not all blocks in a district and not all villages and hamlets within a block may be served by the ICDS program. INHP-II was designed for implementation only in ICDS-served blocks, but did not necessarily cover all ICDS blocks in the districts where it was implemented.

[2] These include Andhra Pradesh (AP), Bihar (BI), Chhattisgarh (CG), Jharkhand (JH), Madhya Pradesh (MP), Orissa (OR), Rajasthan (RA), Uttar Pradesh (UP) and West Bengal (WB). Since the program was implemented in Bihar only from late 2004 onwards, results presented are only from the other eight states.

Study Design and Methods

The Designs of Baseline and Endline Surveys for INHP-II and *Chayan*

These surveys, representative of the respective INHP-II and *Chayan* universes, were designed to evaluate the progress of the two projects and provided state-level and program-level estimates for all relevant indicators. The INHP-II and *Chayan* baseline surveys were conducted separately at different times and used different designs. The endline surveys for both projects were synchronized to coincide with the final evaluation of the RACHNA Program and are described together. Technical Advisory Groups comprised experienced population studies professionals who advised the design and analysis of the baseline and endline surveys.

INHP-II Baseline (January 2001)

The endline survey of INHP-I (1996-2001), conducted in January 2001, served as the baseline survey of INHP-II (referred to as INHP-II baseline or program baseline across all working papers). The INHP-I universe, to begin with, included three different types of intervention areas: the "High Impact" blocks, "Capacity Building" blocks, and "Others", representing different number and intensity of interventions. After the INHP-I mid-term review, these areas were combined and the program adopted a unified Capacity Building strategy with defined Demonstration and Replication areas. However, the INHP-II baseline (INHP-I endline) was designed to generate estimates of indicators for each of the three areas as well as aggregate weighted estimates for the entire universe, encompassing all three. In addition, there was a booster sample drawn only from demonstration sites, but this data was not subsequently used for any purpose in INHP-II evaluation or documentation, since it was deemed not to be adequately representative.

Sample sizes were sufficient to detect a difference of 10 percentage points or higher in the estimates, with 95 percent confidence levels and a power of 80 percent. Table 2.1 details the sampling design for the survey. Since the programmatic interventions were targeted at children less than two years old, the index respondents for the survey were mothers of children who were 0-23 completed months of age at the time of the survey.[3]

Table 2.1: **The sampling design of the INHP-II Baseline (INHP-I Endline) survey**

	High impact	Capacity building	Others
No. of blocks selected in each state	3	3	8
No. of AWC (Primary Sampling Unit) selected from each block	10 (total 30)	10 (total 30)	8 (total 64)
No. of children 0-23 months old selected from each AWC	18	18	18
Total sampled children	540	540	832

[3] The inclusion of only surviving children in all these surveys introduced a survival bias – the small numbers of still born or dead children who could potentially have experienced lesser care than those who survived have been excluded. This is a small proportion (less than 10 percent even in the worst case), and is not expected to create a significant bias in the estimates of various indicators. In any case, this bias is common to all surveys whose estimates are being compared in these papers.

The *Anganwadi* Centers (AWCs) were the Primary Sampling Units (PSUs) and respondents were mothers of children between 0-23 months. Since the population of an AWC is within a certain definite range, further consideration of village or town population size during sampling was not needed. At the PSUs, interviewers followed a random process for selecting respondents. Each PSU was first divided into three approximately equal areas. Visiting each area by turn, investigators took a random start and followed households in a predetermined direction until six index respondents were found and interviewed in each area. Thus, 18 respondents were selected and interviewed from each PSU. Non-responses were not recorded.

Since this design effectively over-sampled "High-impact" and "Capacity building" areas, state-level estimates derived were weighted estimates of the three areas, based on the number of AWC in each universe. Program-wide estimates for the baseline are weighted averages of state-level estimates. These weights are again based on the number of AWCs in the program universe in each state.

Data collection and handling

Data was collected by contracted professional research agencies using tools provided by CARE. Each research agency set up its own data entry systems and submitted a separate report for each state following guidelines provided. A separate professional agency was contracted to manage the research agencies and oversee their work. This agency put together a program-level report summarizing and collating results from individual state reports. The sample coverage for the INHP-II baseline are given in Table 2.9 in Appendix B.

All baseline results presented in this series of papers come from reanalysis of the raw baseline survey data sets. Weights used for deriving state-level estimates and program level aggregate estimates were re-computed to match as closely as possible, the manner in which the endline data was weighted and analyzed.[4]

Chayan Baseline (May-June 2003)

Although the *Chayan* project was commissioned in 2002, actual implementation commenced only in mid-2003 and the baseline was conducted in May-June 2003. The implementation design of *Chayan* included initiating interventions in the Demonstration Sites (DS) common to INHP-II and then expanding to full scale in the 45 project districts[5] over five years. The sampling design took into consideration the potential differential results in the DS and in the urban blocks and non-urban blocks, and thus had separate samples from these three universes. The sample sizes estimated were large enough to detect the target increase of the prevalence of modern spacing methods by three percentage points from the expected endline values of between 5-10 percent in the target age group. A minimum sample size of 700 was estimated for the DS area. Since there was one more stage in sampling non-urban PSUs, a design effect of 1.5 was considered, and the sample size was estimated to be 1100.

[4] The Endline data analysis uses sampling weights for generating all its main results' estimates, derived from information related to actual proportions of units sampled out of those available at different stages of sampling. This kind of information was not available for the Baseline. However, internal weights for the three areas of the Baseline could be recomputed based on the number of AWC in the universe of each of the three areas, in a manner similar to that computed in the Endline survey, to make the estimates methodologically more comparable. This re-weighting of the Baseline is one of the reasons for any differences seen between estimates reported in INHP-I Final Evaluation reports and those published in this series of papers. Another reason is the redefinition of indicators to match the more robust or refined indicator definitions used in the Endline data analysis.

[5] The *Chayan* universe was part of the INHP universe. All DS of *Chayan* were also the DS of INHP.

Table 2.2: **The sampling design for the *Chayan* Baseline**

	Urban blocks	Non-urban blocks	Demonstration sites
No. of blocks selected per state	5	10	50 DS per state randomly picked from all available DS in state
No. of AWC selected per block	10	11	
No. of currently married 15-44 year-old women selected per PSU	14	10	14
Total target sample	700	1,100	700

Table 2.2 outlines the sampling design for the *Chayan* baseline. In brief, the DS were randomly selected from the DS available in the *Chayan* districts. For urban and non-urban areas, first a fixed number of blocks were randomly picked from the respective universe, and then a fixed number of PSUs were selected. DS were excluded from the sampling universes of these two areas.

Once the blocks and PSUs were randomly picked for each stratum as indicated in the table, a sampling frame was generated through house-listing and a predetermined number of respondents randomly picked and interviewed from each PSU.

Two major design changes were made in the program after the baseline survey was completed and these had sampling implications: the number of program districts was reduced from 45 to 29; and the duration of the project to was reduced from five years to effectively less than three years. The latter particularly affected planned program scale-up and led to scaling down of the expected results. Detecting a lesser difference than projected would have required a larger sample size, but the baseline survey had already been completed. To partly compensate, the endline survey used larger sample sizes. While the effect of the reduction of the size of the universe from what had been originally surveyed could never be completely resolved, it was assumed that estimates of indicators from the baseline sample drawn from the larger universe were equally representative of the reduced universe.

Data collection and handling

Professional research agencies were contracted to collect data. A separate professional agency was entrusted with the responsibility of monitoring the field implementation of the study including the selection of the sampling units, training of the field teams, and monitoring and guiding the quality of the field work.

Data from only the non-urban blocks were used in the paper, *Spacing Methods* in this series. The sample coverage rates for this arm are presented in Table 2.10 in Appendix B.

INHP-II and Chayan Endline Survey Designs

Since the INHP-II and *Chayan* endline surveys were conducted together and followed very similar designs, they are described together here.

Several considerations led to refinement of survey designs for the INHP-II endline. The program interventions had become more refined, and thus more refined indicators were necessary to assess program influence. The experience with the periodic rapid assessments and evaluation research studies (described later) had provided many lessons in the conduct of surveys and assessments that could not be ignored. It also became clear that the main objective of INHP-II endline assessment was the measurement of change that was expected to have taken place at full scale,

and the interest was no longer in specific subsections of program universe, such as had been the case at the INHP-I endline. Finally, the potential of using the INHP-II endline assessment as baseline for a future project had to be considered. The design of the endline survey thus had the following elements:

a) The primary respondents for the INHP-II survey were mothers with surviving children aged less than two years of age, as in the case of the baseline survey. However, in the endline survey, this age-group was split into two: mothers of 0-5 month old children, who were asked questions related primarily to antenatal, natal and newborn care and breastfeeding, and mothers of 6-23 month old children, who were asked questions related primarily to complementary feeding and immunization. This had several benefits:

   - It provided dedicated time for more specialized questions to relevant respondents;
   - It helped reduce recall bias by reducing recall periods for events endline related to maternal and child care and feeding;
   - It allowed interviews to capture more recent events, reflecting the influence of more recent program interventions, rather than those of the distant past. This was considered important, since implementation of interventions had reached the full universe barely 8-10 months before the endline;
   - It enforced a wider spread of the sample, in order to capture adequate numbers of the smaller age-group, making the sample more representative of the universe.

   Estimates for indicators for the entire 0-23 months, where required, were then derived by combining the two data sets using appropriate weights.

b) The primary respondents for the *Chayan* endline were currently married women between 15-49 years of age. For comparison with the baseline, however, only women between 15-44 years were considered.

c) The sampling design was multi-stage and the universe was the respective programming universe of INHP-II and *Chayan*. The sampling design attempted to maximize representation and minimize design effect in several ways. Briefly, the following steps were followed:

   - Blocks were selected after stratifying available program blocks according to whether they were urban, rural or tribal. The relative proportions of these blocks differed considerably across states.
   - Before selection, blocks were listed by the district, and circular systematic sampling employed to ensure the spread of blocks across as many districts as possible.
   - The number of PSUs sampled was the minimum number required to yield the estimated sample size for the 0-5 month age-group which was the rarest to find.[6]

[6] This was determined by birth rates, but in practice, from the actual number of children listed in this age group in different states in previous surveys (the RAPs conducted repeatedly in one district in each state followed a similar design, and provided this information).

- The number of blocks covered was determined by the total number of AWCs (PSU) to be sampled at eight PSUs per block. In effect, the number of PSUs (and blocks) sampled in states with lower birth rates, such as Andhra Pradesh, were much larger than the number of PSUs (and blocks) sampled in states with high birth rates, such as Uttar Pradesh. The exact number per block actually sampled differed from block to block, since this average number was redistributed in proportion to the total number of AWC in the selected blocks.
- The potential difference in performance expected between AWCs with different durations of INHP-II interventions was factored in. Demonstration Sites (DS – those with the longest exposure), Replication Sites (RS), and Others (those with the least duration of exposure) in selected blocks were clustered separately in the list of PSUs before using circular systematic sampling, effectively ensuring proportionate representation of PSUs having apparently different durations of exposure to the intervention.[7]
- Once the PSUs were selected, house-listing was carried out that permitted generating the sampling frames needed to draw samples for each age group. Thus, separate lists were drawn up for children of 0-5 months and 6-23 months of age for all INHP states, and one for currently married women 15-49 years old for *Chayan* states. Systematic circular sampling was used to sample the required number of respondents from each of these frames, yielding samples that were proportionate to population size.

Effectively, all these measures together ensured that the sample drawn was virtually self-weighted. Even so, sample sizes were determined using a probable design effect of 1.8, which was the highest design effect found for similar indicators in NFHS-2.[8]

d) This design virtually matched the *Chayan* baseline survey design as well, with the exception that the spread of the sample was over fewer blocks but the selection of respondents in each PSU was more representative.[9]

e) The DS stratum was boosted by the random addition of additional DS from each block in sufficient numbers to meet sample size needs. Since the primary interest in RACHNA is implementation at full scale, the DS data has not been referred to in this documentation effort.

The INHP-II endline was limited to 75 districts in eight states. Bihar and its three program districts were excluded because they had not experienced the same duration as the rest of the INHP states;[10] and 22 blocks in these 75

[7] As described in the paper, *Program Description*, however, the evolution of implementation strategies effectively meant that the entire universe received more or less uniform interventions in the last year of the program, and it was not expected that there would be significant differences between these three categories of AWCs.

[8] One important difference in the design of NFHS and this survey is that NFHS directly selects PSUs from the universe, while the RACHNA Endline has one more stage – the selection of blocks.

[9] There were four *Chayan* states – Uttar Pradesh, Jharkhand, Chhattisgarh and Rajasthan. While all the 12 districts of Uttar Pradesh were also *Chayan* districts, only about half the districts of the other three states had *Chayan* interventions. This meant that, while in Uttar Pradesh the *Chayan* sample was spread over the same number of PSUs as the INHP sample, it was spread over about half as many PSUs as INHPs in the remaining three states.

[10] After the formation of Jharkhand, INHP operations moved to Jharkhand and the Bihar program was closed. At the request of the government, INHP was restarted in Bihar in October 2004.

Table 2.3: **INHP-II and *Chayan* Endline sampling design**

Target sample	0-5, 6-23 month children: 733 complete interviews, 862 listed, each 15-49 currently married women: 2558 complete interviews, 3009 listed
Total number of PSU per state	Sufficient to capture target sample for 0-5 month children, number vary by birth rates from state to state
Total number of blocks per state	Dependent on the number of PSUs selected, at 8 PSU per block
Selection of blocks	Randomly from the program blocks in the universe, stratified by type of block (rural, tribal, urban), and by district
Selection of PSUs	Randomly from the AWC in the selected block, stratified by type of AWC (DS, RS, others)
Selection of respondents	Randomly from each PSU, in proportion to the total respondents in each age group as found during house-listing; *Chayan* respondents only from *Chayan* program districts

districts were excluded because of the naxalite activity and lawlessness that might have not made it possible to conduct the surveys as planned. The *Chayan* universe was also similarly affected. The INHP-I endline for Madhya Pradesh served as INHP-II baseline for Chhattisgarh and Madhya Pradesh and the Bihar baseline served as the baseline for Jharkhand (see discussion on changes in program universe later).

The sampling design of the endline surveys is summarized in Table 2.3.

Sample size considerations

For INHP, the sample size was expected to be sufficient to detect a difference of 10 percentage points from a baseline value of 50 percent (the main impact indicator, proportion of malnourished children had a baseline value of around 50 percent for several states, and was expected to move down 10 percentage points) and was calculated to be a minimum of 733 complete interviews for each age group.

For *Chayan,* the sample size was expected to be sufficient to detect a difference of three percentage points from a baseline value of around seven percent (the main impact indicator, contraceptive prevalence for modern spacing methods was around seven percent at the baseline, and was expected to move up three percentage points) and was calculated to be a minimum of 2,558 complete interviews.

These sample size estimates were based on confidence levels of 95 percent, power of 80 percent and a design effect of 1.8. Based on previous experience, non-response rates were expected to touch 15 percent. Accordingly target sample sizes for INHP-II and *Chayan* were fixed at 862 (for each age group) and 3009 respectively per state. These numbers then determined the number of PSUs and blocks in each state as explained earlier. Substitution of respondents for those not found during data collection in the field was not allowed.

Service provider interviews

In addition to household interviews of mothers and women, three other instruments were used to interview AWWs, ANMs and Change Agents (CAs) serving the same AWCs sampled for the household surveys. The attempt was to interview all available AWW and ANM and up to three CAs in villages where they were

available. These service providers' interviews were designed to capture knowledge and awareness levels and information about certain processes considered important to program implementation.

Data collection and handling

Data was collected by contracted professional research agencies using tools provided by the RACHNA Monitoring and Evaluation (M&E) team. A large proportion of the interview questions came from either the baseline survey tools or from the tools used for the RAPs (described later), and thus were tried and tested tools. A Technical Advisory Group (TAG) was set up to advise on all aspects of the design and conduct of the endline survey. The BASICS project provided technical support and guidance.

A set of common, customized data entry programs was provided to the research agencies, which was used for double data entry followed by reconciliation using raw data. Each research agency submitted cleaned raw data to the RACHNA M&E team and to the donor, besides a brief summary report containing estimates of the main indicators.

All endline results presented in this series of papers come from reanalysis of the raw endline survey data sets. Any differences in estimates between those published previously, such as in the RACHNA Final Evaluation report, and those in the present set of papers, arises from either differences in indicator definitions, or from minor changes introduced by further cleaning of the data sets undertaken after the Final Evaluation in April-May 2006.

In most states, at least 80 percent of the sampled women were interviewed. Survey completion rates are presented in Tables 2.11 and 2.12 in Appendix B.

Changes in the universe between INHP-II Baseline and endline surveys

The paper, *Program Description,* provides the background for certain changes that occurred in the program universe between the baseline and endline surveys. In brief, there were two factors that caused the universe to change: the creation of the new states of Jharkhand and Chhattisgarh, and the "consolidation" of program blocks of RACHNA. The changes, in terms of how many blocks were added to the original universe and how many dropped from it are summarized in Table 2.4. The largest changes, in terms of the proportion of original blocks retained, were seen in Rajasthan and Madhya Pradesh.

Table 2.4: **Changes in the number of blocks at INHP-II Baseline and Endline**

State	Total blocks Baseline	Total blocks Endline	Blocks dropped	Blocks added	Blocks retained
Andhra Pradesh	89	70	19	0	70
Chhattisgarh	111 (as MP)	96	34	20	77
Jharkhand	117 (as Bihar)	125	18	26	99
Madhya Pradesh	31	29	16	14	15
Orissa	122	104	18	0	104
Rajasthan	88	64	45	21	43
Uttar Pradesh	125	132	3	10	122
West Bengal	100	91	9	0	91

The universe in the baseline for Madhya Pradesh and Chhattisgarh comprised 142 blocks (111 from Chhattisgarh-to-be and 31 that remained in Madhya Pradesh).

Based on the advice of the TAG, key variables from the 2001 census data were used to compare the previous and the present universes, and determine the extent of the difference between them. The variables used for comparison were population sex ratio, sex ratio (0-6 years), total literacy, female literacy, percentage of scheduled castes and scheduled tribes, percentage work force and the proportion of work force being agricultural laborers. The TAG reviewed the results of this analysis (summarized in Table 2.8, Appendix A) and deemed that the demographic composition had not altered significantly, and that, considering the design of INHP-I and II, the baselines were valid and endline and baseline datasets could be directly compared to draw conclusions. However, after analyzing the data sets, there is reason to believe that some changes (or lack of changes) may still be attributable to differences in the universe. Such situations have arisen primarily in the case of Bihar/Jharkhand and Madhya Pradesh/Chhattisgarh, where variables such as access to health care facilities and to health information, which were not available from the census, could conceivably be different. The most affected are the results from Madhya Pradesh, where the project area was reduced to three border districts in INHP-II from the erstwhile project area that encompassed a large part of what is now Chhattisgarh. Since Madhya Pradesh contributed less than five percent by population weight to the program level estimates, these estimates have not been significantly affected. However, baseline-endline comparisons for Madhya Pradesh itself are probably not fully valid.

The Design of Periodic Rapid Assessments (RAPs) in Panel Districts

Three rounds of RAPs were conducted in 2003, 2004 and 2005. Originally envisaged to be small in scope, RAPs eventually became comprehensive assessments that provided in-depth information on outcomes and processes. Yet, by standards of large surveys, they remained relatively rapid, requiring about six weeks each, starting from the training of field investigators for data collection, through analyzing data and ending with making available the key results.

The "panel" districts[11] for the RAPs selected were reasonably typical of the program districts in each state and care was taken to ensure that fully staffed CARE/RACHNA district team was in place and that there were no unusual administrative barriers to implementation in the district. The universe for the RAPs was the first phase replication sites and thus the surveys represented the cohort of sites that first experienced the INHP influence of at-scale implementation.[12] This universe remained unchanged through all rounds of assessments. The number of sites (AWCs) was roughly 25 percent of the AWCs of the district. The actual number varied according to the size of the district – from

[11] The panel districts were Khammam (Andhra Pradesh); Kanker (Chhattisgarh); Lohardaga (Jharkhand); Seoni (Madhya Pradesh); Kalahandi (Orissa); Bikaner (Rajasthan); Rae Bareli (Uttar Pradesh) and Bankura (West Bengal).

[12] By design, INHP interventions reached about 10 percent demonstration sites (DS), followed by "replication" to 25 percent of AWC in each district in 2003 and a similar proportion in 2004. Those reached by the end of 2003 are therefore called "first phase replication sites" and the first round of RAPs therefore represent the Baseline assessment of the series of periodic assessments in the panel districts.

78 AWCs in five blocks in Lohardaga (the panel district of Jharkhand) to 540 AWCs in 12 blocks in Rae Bareli (the panel district of Uttar Pradesh). Although a small set of reproductive health related questions was included in later rounds of RAPs, they largely addressed only INHP interventions.

For reasons described for the INHP-II endline survey, the RAPs target group was split in two separate groups for the surveys:

- Mothers of children 0-5 months old, covering issues related to antenatal care, delivery, newborn care and breastfeeding.
- Mothers of children 6-23 months old, covering complementary feeding and primary immunization.

The survey design was somewhat different for Round 1 and the subsequent rounds, the changes being made primarily to enhance precision of estimates:

- The first round used a two-stage cluster sample, first selecting five random blocks out of the available program blocks in each district, and then five AWCs (the PSU) from the universe of first phase replication sites available in each block, to give a total of 25 PSUs per district. From each selected AWC, a minimum fixed number of children from each age-group was then picked by circular sampling with a random start, on the basis of prior house-listing. The target sample size was 150 children in the 0-5 month group and 450 in the 6-23 month group. Additional PSUs were randomly picked and assigned for the survey from each block if the original number proved insufficient to meet the target sample size.
- In the second and third rounds of RAPs the sampling of PSUs (AWCs) was done randomly in proportion to the number of AWCs available in the universe, with a total of 90 AWCs being selected for each district. After house-listing, the minimum target sample of 460 for both the age groups 0-5 and 6-23 was then selected by a similar method so that the number of respondents selected from each AWC was in proportion to the actual number of children listed. In effect, the better representation of the universe in the latter two rounds makes their estimates more precise than those of the first round. This is particularly true of the estimates for indicators from the 0-5 month group, since the sample for this group in the first round was only 150. This was similar to the design of the endline survey, except that the universe comprised only first phase replication sites.

In all the rounds, mothers not found at the time of the interview or those refusing to be interviewed were not replaced.

The survey instruments also changed between Round 1 and subsequent rounds, mainly to include additional questions, taking care to maintain compatibility with Round 1 to the extent possible. These changes were made to get a deeper understanding of critical processes in program implementation and specific ways in which these were influencing outcomes. The questions used for Rounds 2 and 3 of RAPs and the INHP-II endline survey are very similar.

Service provider interviews (AWW, ANM, CAs) were also conducted as part of the RAPs, with tools and samples similar to what was eventually used for the endline survey. Since the CAs were not in place during Round 1, they were interviewed only during Rounds 2 and 3. Up to three CAs per AWC were interviewed, while all available AWW and ANMs were interviewed.

Contracted professional research agencies collected the data, and submitted double-entered cleaned data to RACHNA using data entry programs provided. The RACHNA M&E team and BASICS managed all other aspects, including data analysis. No formal reports were prepared for most of the rounds of RAPs, but results were extensively tabulated and used after each round to inform program strategies. For the purpose of this series of papers, data has been reanalyzed when required.

Data for Round 1 was collected from all states in the last two weeks of November 2003. For Round 2, data was collected from two states (Chhattisgarh and Orissa) in July 2004, for five other states in September 2004 and for Andhra Pradesh in October 2004. For Round 3, data was collected from six states (Andhra Pradesh, Chhattisgarh, Jharkhand, Madhya Pradesh, Rajasthan and West Bengal) during August – September 2005, and for the two remaining states (Orissa and Uttar Pradesh) November 2005. With very few exceptions, all surveys achieved at least 80 percent completion rates. These are presented in Tables 2.13a and 2.13b, Appendix B.

The Design of the Evaluation Research Studies

Although the evaluation research (ER) studies are not the primary subject matter of the papers in this series, several papers have referred to their results, and thus a brief overview of the methodology is presented here. Details are available in the respective study reports (Newborn Evaluation Research Report and Nutrition Evaluation Research Report).

Nutrition Evaluation Research

To assess the impact of INHP-II interventions, a pre-test, post-test, quasi-experimental evaluation design was employed with an intervention and comparison area in each of two program states, Uttar Pradesh and Andhra Pradesh.

Study design

In each of the two states, an INHP district was selected as an intervention area while a similar non-INHP (ICDS) district was chosen as comparison area for the nutrition evaluation research. In Uttar Pradesh, Barabanki was selected as the INHP district and Unnao was selected as the comparison district where the Government of India's (GoI) ICDS program was in place. In Andhra Pradesh, Karimnagar was selected as CARE's INHP district and Rangareddy was selected as the ICDS comparison district. The baseline survey interviewed and collected measurements from pregnant women, and mothers and their children 0-23 months of age to determine baseline levels of process and outcome indicators for maternal and child nutrition prior to the intervention period. After two years of program intervention, an endline cross-sectional survey of the same target groups in the study area was conducted. The adequacy of the intervention implementation was assessed twice during the two-year evaluation period; the first one after one year of program

implementation, and the second six months later. Data was collected from the pregnant women and mothers of children 0-23 months to assess program exposure at the household level. In addition to nutritional status, the programs were also assessed for anemia, although reduction in anemia levels was not a committed program outcome.

The universe

In each of the four districts in the evaluation, rural blocks were included in the study. In Uttar Pradesh, the intervention district of Barabanki had 16 blocks, and RACHNA worked in 14 of the 16 blocks, all of which were rural. The evaluation study was planned for the 10 blocks where RACHNA was able to start its replication strategy immediately as the other four blocks had too many sector supervisor vacancies. The comparison district of Unnao had 16 blocks also, 15 of which were rural. Nine blocks were randomly selected to represent this district in the evaluation. In Andhra Pradesh, each district selected for the evaluation had 15 blocks. In the intervention district of Karimnagar, RACHNA worked in nine of the 15 blocks, and the evaluation was conducted in these nine RACHNA blocks. In the comparison district of Rangareddy, eight blocks were selected randomly for the purpose of this evaluation.

In the intervention districts in each state, the sampling universe for survey sample selection included only those sectors and AWC areas that were RACHNA replication sites. In the comparison districts, the sampling universe included all functioning AWCs from all sectors of the selected blocks in the district.

Baseline and Endline surveys – Sample size considerations

Sample sizes were calculated based on a statistical power of 80 percent to detect a difference and a significance level of 95 percent. The sample size was not increased to account for a design effect, which in nutrition studies has been small or trivial. The sample size estimations for children were based on three primary outcomes: shift in average z scores in length and weight and stunting. Sample sizes were estimated that would allow the detection of a shift of 0.18 z scores from baseline to endline, or an absolute reduction in stunting of six percent points from an anticipated baseline of 60 percent (the NFHS-2 estimate for stunting was 57.5 percent). Accordingly, approximately 1200 children aged 12-23 months were needed for nutritional status outcomes.

Sample selection

Uttar Pradesh. In the intervention district (Barabanki), two sectors were randomly sampled from each block (n=20 sectors). In the comparison district (Unnao), two-four sectors were randomly sampled per block in proportion to the number of AWC per block (n=20 sectors). In both districts, three AWC areas were randomly sampled from each selected sector (n=60 AWC). Women were randomly selected from the sampled AWC areas.

Andhra Pradesh. In both districts, two to three sectors per block were sampled in proportion to the number of AWC per block (n=20 sectors), and four to six AWC areas were randomly sampled per sector (n=110 AWC). Women were randomly selected from the sampled AWC areas.

Adequacy surveys –
Sample size considerations

For the adequacy surveys, 100 currently pregnant women and 500 mothers of children 0-23 months of age were targeted for interviews. The sample sizes were however adequate to detect a difference of about 10 percent between program areas.

Sample selection

In all districts, one sector was randomly sampled from each block for selection of the Adequacy Survey sample. In Andhra Pradesh districts, two-three AWCs per sector were sampled per block for a total of 24 selected AWC areas. In Uttar Pradesh districts, one to two AWCs per sector were sampled for a total of 13 selected AWC areas. The same sample of AWC areas were used for both adequacy survey rounds to allow for tracking of program exposures in the same AWCs over time.

Sample coverage rates for the surveys are provided in Table 2.14 in Appendix B.

Newborn Evaluation Research

Study design

Barabanki district in Uttar Pradesh was selected as the intervention district. The nearby district of Unnao was selected as the comparison district. The evaluation components included surveys of households and health care providers to establish baseline levels for process and outcome indicators, including neonatal mortality, during the two years preceding the baseline survey. To assess the impact of the intervention, the household survey was repeated after 30 months of program implementation. The adequacy of the implementation of the interventions was assessed through three adequacy surveys conducted between 7-8 months, 13-14 months and 19-20 months into the intervention. Adequacy indicators assessed changes at the community-based provider level and at the community/household level, by collecting data from samples of women that gave birth during the six months preceding the survey and from community-based health workers. The universe for the study included AWC areas covered by RACHNA in the intervention district and AWC areas in the comparison district.

Baseline and Endline surveys –
Sample size considerations

The program aimed to decrease neonatal mortality in the intervention area by at least 20 percent. Sample size was calculated to detect expected differences in neonatal mortality rates between the intervention and comparison areas with 80 percent power and at the 95 percent confidence level. To account for clustering, the estimated sample size was multiplied by an assumed design effect of 1.2. This required a population that would provide information on at least 8,332 live births in each study area, or a total of 16,664 live births. Since the study took place over two years, the number of births needed in the cohort per year is half the total number. The estimated birth rate in the area was 35 live births per 1,000 people. Each household had an average of five members, so a population of 1,000 would include about 200 households. Taking these factors into consideration, the number of households required to record 16,664 births was: $(16{,}664 \times 200 \times 0.5)/35 = 47{,}611$.

Therefore, approximately 24,000 households were needed in each of the two districts to record the outcomes of 16,664 live births over two years. Assuming a

non-response rate of 10 percent, a minimum of 26,400 households were needed in each area.

Sample selection

Rural blocks from the intervention and comparison districts were selected for the evaluation research. The district of Barabanki has 16 blocks, 15 of which are rural. At baseline, the Indian Council of Medical Research was conducting a pilot project in two of the 15 blocks, so they were excluded from this study. Nine of the remaining 13 blocks were randomly selected as intervention sites. One ICDS sector, an area with 15-25 AWCs and an estimated population of 20,000-25,000, was randomly selected from each of the nine selected blocks. Similarly, in Unnao where there are 16 blocks, 15 of which are rural, eight blocks were randomly selected as comparison sites and one sector was randomly selected from each block.

Adequacy surveys –

The sample size for the adequacy surveys was estimated on the basis of the following assumptions and considerations. To obtain the most conservative (largest) sample size, estimates were based on an assumption of 50 percent prevalence of a given care practice among households with a women who had given birth six months prior to the survey (i.e., recently delivered women, RDW). To measure each indicator at sector level with ± 10 percent precision, it was necessary to interview at least 100 RDW per sector.[13] This would result in at least 900 mothers from the intervention area and 800 mothers from the comparison area, 1,700 women altogether. To detect an area-level difference of 10 percent, at lease 538 mothers would be needed from each study area. Therefore, the sampling of 1,700 mothers would allow the deduction of a ±10 percent difference between study areas with 90 percent power. Assuming a 15 percent non-response rate, 115 RDW from each sector were sampled to participate in the study. The sample was randomly selected from each AWC catchment area. The number of women selected from each AWC was proportional to the number of births in the area.

For the service providers' survey, attempts were made to interview all ANMs, AWWs and CAs in the study areas of both districts.

Sample coverage rates for the surveys are provided in Table 2.15 in Appendix B.

Other Relevant Methodological Issues

Socioeconomic Status and Equity Analyses

Data on various elements of *socioeconomic status* was collected during the RACHNA surveys. This information has been analyzed in different ways in this series to understand equity issues, particularly from the INHP baseline and endline surveys, and from the RAPs. The methods used to compute socioeconomic status scores are briefly described here.

[13] Given that the average population of a sector is about 20,000 and the annual birth rate is about 25 per 1,000, the number of expected births per sector over six months period would be about 250. Therefore, it was feasible to sample 100 women from each sector.

The latter rounds of RAPs and the RACHNA program endline contain extensive information on socioeconomic status, including the information necessary to construct a Standard of Living Index similar to that used in NFHS. However, much of the analysis presented in the present series of papers requires comparisons across all rounds of RAPs or between the program baseline and endline surveys. The socioeconomic information available from the first round of RAPs or the program baseline is restricted to a small handful of basic variables which limits the depth of analysis using socioeconomic variables. Simple socioeconomic scores were constructed using these common variables.

For the RAPs, they were used as dichotomous variables to perform a Principal Components Analysis, which provided relative weights as z-scores. These were assigned to each case (respondent) depending on the presence or absence of the variable as defined. The sum total of the weight scores obtained by each respondent became the total socioeconomic score of the respondent. This exercise was done separately for each dataset (0-5, 6-23) in each state. The distribution of the socioeconomic scores in each data set was examined and a natural cut-off selected to identify two socioeconomic parts of the sample, low and high, so that the numbers of cases in the two parts were as close to being equal as possible.

For the program baseline and endline, each of the common socioeconomic variables across the two surveys was redefined to create dichotomous variables, the absence or presence of which received scores of 0 and 1 respectively. The sum total of variable scores was the total socioeconomic score for the case (respondent). The distribution of these scores for each state was examined and a natural cut-off selected to identify two socioeconomic parts of the sample, low and high, so that the numbers of cases in the two parts were as close to being equal as possible.

While it was theoretically possible to form more than two categories of socioeconomic scores, sample size restrictions did not permit this. It was necessary to do this exercise separately for each state since some of the variables behaved differently in different states.

The common variables used for constructing such a score for the RAPs data include mother's education, mother's occupation, father's occupation, caste and type of house. The common variables used for baseline and endline surveys include mother's education, mother's occupation, caste, type of house, availability of drinking water, availability of electricity, and availability of toilet facility.

The evaluation research studies used SLI in a manner similar to that used by NFHS.

Statistical Treatment of Data other than in the Evaluation Research Studies

For deriving program-wide estimates for any indicator, population weights were applied to state estimates, using the number of AWC in RACHNA program areas in each state as proxies for actual population figures (which were not reliably available). In addition, for the INHP baseline and INHP and *Chayan* endline data, sampling weights were considered when deriving state level estimates for all

indicators. In the INHP baseline, state level estimates were derived by assigning population weights (using AWC as proxy for population weights) to the three areas as described earlier. In the INHP and *Chayan* endline surveys, sampling weights were assigned to each case (respondent) based on sampling proportions at each stage of sampling (block, PSU, respondents). However, for all variables analyzed from the endline datasets, the differences between weighted and unweighted state estimates were seen to be very small, and consequently, much of the secondary analysis such as the associations between two variables, did not use weighting.

Simple bivariate analysis has been used in most of the papers to examine the two primary questions that they seek to address: (1) What is the magnitude of change in the outcomes of interest produced at scale? (2) Is there reasonable evidence to establish that the change is attributable to the RACHNA interventions? Since the issue of scale is of central interest, data from the RACHNA baseline and endline surveys is used to answer the questions, using data from RAPs and evaluation research only to supplement this. The need to handle eight states separately makes even the presentation of simple analysis appear complex, particularly in examining associations between outcomes and potential determinants. Since it is important to understand variation from state to state, this approach of presenting results from individual states in each table has been retained and by and large, simple aggregate analysis at the program level has been avoided. Similarly, multivariate analysis has not been used at this stage.

Statistical significance tests have been sparingly used. The RACHNA endline survey was designed to detect a difference of 10 percent points or more from the baseline in the worst case scenario of an indicator with a baseline value of 50 percent, and with a design effect of 1.8. The RAPs sample sizes were similarly designed, but on the assumption of much smaller design effects. Detailed sampling weights and design effects have not been estimated for the surveys, partly due to the fact that the different surveys had somewhat different designs. In the absence of such analysis, the exercise of calculating confidence intervals, considering the design effect has not been undertaken. Instead, to maintain practicality, it is assumed that, for estimates derived from reasonably large denominators, differences of 10 percent points or more between two surveys are statistically significant. In most program contexts, a difference of this magnitude is also programmatically convincing. For some of the analyses, odds ratios or relative risks have been estimated and p values from Mantel-Hansel chi-square tests are provided, on the assumption of simple random sampling.

RACHNA Survey Methodologies and Other Survey Methodologies: A Brief Comparison

This section briefly compares RACHNA survey methodologies with those of the National Family and Health Survey, Coverage Evaluation Surveys and District Level Household Surveys/Reproductive and Child Health Surveys to assess the validity and limitations of the comparability of results.

The National Family and Health Survey

Comparisons between RACHNA and National Family and Health Survey (NFHS) results have been made in two ways in this series of papers. Direct comparisons between NFHS-3 and RACHNA endline estimates, and comparisons of differences in the changes in estimates for comparable indicators over time – that is, comparing the change between NFHS-2 and NFHS-3 to the change between RACHNA baseline and endline. Such comparisons have been made wherever indicators with comparable definitions were found, and on the assumption that such comparisons were valid notwithstanding other methodological differences between the sets of surveys. The issues of comparability of definitions of specific indicator have been dealt with in individual papers. Here, methodological differences in the designs of the two sets of surveys are discussed in brief.

The NFHS surveys (the Indian DHS) are meant to provide periodic general health status reports for each state. Using a multi-stage stratified sampling design, index women in the 15-49 years age group are identified and interviewed from among randomly sampled households in the selected PSUs, and typically, interview completion rates exceed 90 percent. The number of children less than two years old captured in the surveys varies from state to state but exceeds 1,000 in most of the northern states. No replacements are allowed for sampled respondents not found at the time of interview, and typically, data collection in each state lasts several months. Since NFHS has one level of clustering less than the RACHNA endline, NFHS estimates have correspondingly lower standard errors, and thus narrower confidence intervals. The RACHNA endline and baseline surveys typically captured larger samples of under-two year old children, but with somewhat larger non-response rates, primarily because of the lesser time (and resources) available for data collection. Data collection was also not as closely supervised in the RACHNA surveys as in NFHS. Within these limitations, comparisons are assumed to be useful, given equivalent variable definitions.

Direct comparison between the RACHNA endline estimates and available NFHS-3 estimates at the state level becomes valid and meaningful because the two surveys were approximately contemporaneous (early 2006), and in every state, the RACHNA program universe was smaller than the NFHS universe (the entire state). By inference, NFHS estimates are deemed to represent the weighted average of the estimates for the RACHNA program areas and the (unavailable) estimates for the non-RACHNA areas of the state. Wherever available, NFHS rural estimates are used for comparison because RACHNA is largely a rural program. There are several caveats, however, that must be considered while interpreting such comparisons:

- RACHNA data represent the ICDS coverage universe of the blocks it covers. There are several districts where RACHNA does not cover the entire district, and there are areas within RACHNA blocks that are not covered by ICDS and hence not covered by RACHNA.[14] NFHS does not make such distinctions in choosing its universe. Details of the RACHNA program universe are provided in the Appendices of this paper.

[14] Coverage by ICDS started moving towards universalization in 2004, and large parts of previously uncovered areas were brought under ICDS program coverage by the time of the RACHNA endline survey in February 2006. Even earlier, 85-100 percent of rural areas in most states were already under coverage of the ICDS program. Thus, the difference in ICDS coverage between CARE-served areas covered by the RACHNA endline (100 percent) and all the rural areas of a state (presumably above 85 percent), represented by NFHS estimates, was small even at the baseline, and should not affect interpretation of differences significantly.

- While RACHNA districts are fairly similar to the rest of the state in terms of the socio-demographic characteristics, there could be differences with regard to certain characteristics – such as access to quality health services (for which information is not available readily) or past performance of ICDS and Health systems. Such differences could become significant especially in states where the number of districts covered by RACHNA is small relative to the rest of the state (such as in Madhya Pradesh, where only three districts are covered by RACHNA).

- For this series of papers, raw data from NFHS-3 has not be analyzed to provide estimates for indicators comparable to the INHP-II indicators. Such analysis could lead to deeper insights.

- Finally, the creation of the new states of Jharkhand and Chhattisgarh make past comparisons problematic for both, NFHS and RACHNA, and this demands caution in interpreting results. In some cases, relevant information is simply not available. For instance, for states created after NFHS-2, while state-level estimates have been made available (with caveats), rural-urban disaggregated estimates are simply not available, comparisons must be made between RACHNA rural estimates and NFHS-2 combined urban-rural estimates.

Coverage Evaluation Surveys

The CES conducted by UNICEF assesses service coverage primarily by the programs of the MoHFW, including routine immunization, using surveys designed to provide state-specific estimates of coverage in the 12-23 month age group. The design is a modified 30 cluster survey, and includes 30 rural and 15 urban clusters selected by PPS in each state. After listing and mapping, fixed numbers of respondents are randomly picked from each cluster from sampling frames generated. Replacement of sampled respondents not found at the time of interview is allowed, and completion rates exceed 95 percent. The sample for each state in the age group 12-23 months is 420 rural and 210 urban; weights are not available to ensure appropriate estimation of "total", combining rural and urban, and for comparison purposes, rural estimates are used.

The RACHNA design and sample sizes provide tighter confidence intervals than CES, and comparisons have been made wherever denominators are large enough to ensure minimum reliability. In this series of papers, only CES 2005 results have been compared to the RACHNA endline, since the two surveys were roughly contemporaneous, and the purpose has been the same as the comparison with NFHS-3: to estimate the possible differences between INHP-served and non-INHP-served areas. As in the case of NFHS, individual papers deal with issues related to comparability of specific indicator definitions.

District Level Household Survey/ Reproductive and Child Health Survey

One other obvious source of data for making comparisons with RACHNA results is the District Level Household Survey (DLHS)/Reproductive and Child Health Survey (RCH) conducted by IIPS. These should be directly comparable to the RAPs in the panel districts and to state level estimates of the baseline of endline, using state-level aggregates available for the DLHS/RCH data. However, for a number of reasons, such comparisons are not meaningful.

First, there are very few indicators in DLHS/RCH surveys that are directly comparable to RACHNA indicators – either because the indicator definitions are difficult to match, or because many key indicators used in RACHNA, particularly related to neonatal care or child feeding, are not available in DLHS/RHS. Second, since the last round of DLHS/RCH for which such data is available was conducted in 2002-2004 corresponding to the period that was covered by the first or second round of RAPs (R1 or R2), this data might best be used as an alternative baseline, but not in the way that NFHS-3 data are used, for reflecting recent achievements. Third, even among the eight panel districts, detailed reports for the last round are available for only two of them. Fourth, wherever comparisons are otherwise possible, DLHS/RHS estimates are affected by small denominators – for instance, there are barely 150 cases in the 12-23 month age group in the DLHS/RCH datasets. Finally, there are significant differences in the sampling designs. For these reasons, this series of papers does not make use of comparisons with DLHS/RHS surveys.

Appendix A: Geographical Extent and Demographic Profile of the Area Covered by the RACHNA Program in 2006

Since ICDS was the primary implementing partner of the RACHNA program, RACHNA was implemented only in ICDS blocks. Not all administrative blocks in a given state or district are covered by the ICDS program. Not all ICDS blocks in a RACHNA intervention districts were covered by RACHNA. The actual extent of the coverage of the RACHNA program as in 2006 is shown in Table 2.5.

Table 2.5: **RACHNA program universe, 2006**

State	Districts		ICDS Blocks			
	Total	RACHNA	Total in the state	Total in RACHNA districts	Covered by RACHNA	Percent coverage by RACHNA of ICDS blocks in RACHNA districts
Andhra Pradesh	23	8	251	121	70	57.85
Chhattisgarh	16	10	152	113	96	84.96
Jharkhand	22	17	204	172	125	72.67
Madhya Pradesh	48	3	367	29	29	100.00
Orissa	30	8	326	106	104	98.11
Rajasthan	32	7	274	67	64	95.52
Uttar Pradesh	70	12	897	180	132	73.33
West Bengal	18	9	416	192	91	47.40
Total	259	75	2,887	980	711	72.55

The demographic profile of RACHNA program districts is provided in Table 2.6, based on the 2001 census. More detailed profiling of the actual RACHNA program area is difficult to estimate because the administrative boundaries of census units and ICDS program units do not converge, and no alternative reliable data source

Table 2.6: **Demographic Profile of RACHNA Districts**[15]

State	Total population	Population in RACHNA districts	Demographic characteristics of the population of RACHNA districts				
			Sex ratio	Percent rural population	Percent SC	Percent ST	Percent female literacy
Andhra Pradesh	75,727,541	22,951,718	992	78.9	14.0	10.7	43.9
Chhattisgarh	20,795,956	15,049,276	909	71.8	12.4	19.2	37.0
Jharkhand	26,909,428	23,781,528	952	90.8	15.2	23.2	30.3
Madhya Pradesh	60,385,118	4,513,859	983	83.0	10.0	31.0	55.3
Orissa	36,706,920	8,712,142	992	90.4	12.9	41.0	35.8
Rajasthan	56,473,122	14,333,525	958	76.6	18.4	2.7	50.0
Uttar Pradesh	166,052,859	36,419,881	871	67.3	23.1	0.0	47.0
West Bengal	80,221,171	35,648,845	942	83.6	24.7	6.2	51.2
Bihar	82,878,796	8,898,816	898	72.4	18.4	0.1	43.7
Total	641,828,077	170,309,590	936	76.9	18.0	12.4	46.2

SC : Scheduled Casts; ST : Scheduled Tribes

[15] Source: Census of India, 2001

is available. Since about 72 percent of the blocks in these districts were covered by RACHNA, the same proportion of the population was probably covered by the program.

Since INHP-II was implemented in the entire geographic area represented by the RACHNA program, the above profile represents the INHP-II area as well. The profile of the *Chayan* project areas as of 2006 in presented separately in Table 2.7, below.

Table 2.7: **Demographic profile of *Chayan* districts**[16]

State	Population in *Chayan* districts	Total 15–45 years population			Percent rural population	Percent SC	Percent ST	Percent female literates
		Male	Female	Total				
Chhattisgarh	9,664,473	1,327,007	1,317,168	2,644,175	81.84	10.78	37.62	45.7
Jharkhand	14,691,181	3,809,463	3,516,575	7,326,038	66.69	9.59	28.81	46.9
Rajasthan	8,675,707	2,170,392	1,920,695	4,091,087	72.38	18.02	3.61	39.2
Uttar Pradesh	36,419,881	9,207,153	7,925,019	17,132,172	67.35	23.08	0.04	47.0
Total	69,451,242	16,514,015	14,679,457	31,193,472	69.86	17.88	11.80	45.8

SC : Scheduled Casts; ST : Scheduled Tribes

Table 2.8: **Difference in the demographic characteristics between the original and fresh universes of the RACHNA program, following the shifts described in Table 2.4**

State		Sex ratio	Sex ratio (0 - 6)	Literacy	Female lit.	% SC	% ST	% Working	% Agri. lab*
Andhra Pradesh	Baseline	992	968	59	50	15	9	46	30
	Endline	992	966	55	44	14	11	48	30
Madhya Pradesh + Chhattisgarh	Baseline	982	972	61	48	12	36	48	38
Madhya Pradesh	Endline	983	966	67	55	10	31	47	36
Chhattisgarh	Endline	992	979	59	45	11	37	48	39
Bihar + Jharkhand	Baseline	930	958	55	42	14	23	37	25
Jharkhand	Endline	942	965	56	42	11	32	38	26
Orissa	Baseline	986	968	53	39	12	43	44	31
	Endline	992	967	50	36	13	41	45	33
Rajasthan	Baseline	916	907	59	41	18	6	42	27
	Endline	923	907	61	44	18	3	40	26
Uttar Pradesh	Baseline	874	911	60	47	23	0	32	18
	Endline	871	907	60	47	23	0	31	18
West Bengal	Baseline	920	961	64	54	23	7	39	20
	Endline	951	966	58	47	28	10	39	26
* Agri. Lab includes both main and marginal worker, working as cultivator (own land) or laborer.									

SC : Scheduled Casts; ST : Scheduled Tribes

[16] Source: Census of India, 2001

Appendix B: Sample Coverage and Completion Rates in Different Survey

Table 2.9: **Sample coverage for INHP-II Baseline survey, (children 0-23 months old)**

State	High impact district	Capacity building	Other blocks
Andhra Pradesh	539	546	833
Bihar	270	544	832
Madhya Pradesh + Chhattisgarh	486	540	832
Orissa	432	540	832
Rajasthan	533	544	833
Uttar Pradesh	540	540	833
West Bengal	525	540	832

Table 2.10: **Sample coverage for *Chayan* Baseline survey (non-urban blocks), women 15-44 years old**

State	Sample achieved
Chhattisgarh	1,130
Jharkhand	1,129
Rajasthan	1,147
Uttar Pradesh	1,150

Table 2.11: **Completion rates for INHP-II Endline survey**

State	Age group (0-5)		Age group (6-23)	
	Sample achieved	Completion rate	Sample achieved	Completion rate
Andhra Pradesh	670	77.73	760	88.17
Chhattisgarh	686	79.58	680	78.89
Jharkhand	590	68.45	645	74.83
Madhya Pradesh	614	71.23	689	79.93
Orissa	690	80.05	697	80.86
Rajasthan	623	72.27	679	78.77
Uttar Pradesh	614	71.23	668	77.49
West Bengal	634	73.55	682	79.12

Table 2.12: **Completion rates for *Chayan* Endline survey (women 15-49 years old)**

State	Sample achieved	Completion rate
Chhattisgarh	2,374	78.9
Jharkhand	2,077	69.0
Rajasthan	2,476	82.3
Uttar Pradesh	2,517	83.6

Table 2.13a: **Completion rates for RAPs surveys (Age group 0-5)**

State	RAP I	RAP II		RAP III	
	Sample achieved	Sample achieved	Completion rate	Sample achieved	Completion rate
Andhra Pradesh	153	351	64.76	417	76.94
Chhattisgarh	162	446	82.29	490	90.41
Jharkhand	177	398	73.43	411	75.83
Madhya Pradesh	152	445	82.10	451	83.21
Orissa	150	466	85.98	467	86.16
Rajasthan	159	474	87.45	447	82.47
Uttar Pradesh	171	462	85.24	448	82.66
West Bengal	164	460	84.87	430	79.34

Table 2.13b: **Completion rates for RAPs surveys (Age group 6-23)**

State	RAP I	RAP II		RAP III	
	Sample achieved	Sample achieved	Completion rate	Sample achieved	Completion rate
Andhra Pradesh	442	416	76.75	488	90.04
Chhattisgarh	456	470	86.72	485	89.48
Jharkhand	455	401	73.99	441	81.37
Madhya Pradesh	456	452	83.39	445	82.10
Orissa	450	491	90.59	448	82.66
Rajasthan	441	474	87.45	454	83.76
Uttar Pradesh	435	465	85.79	475	87.64
West Bengal	461	483	89.11	455	83.95

Table 2.14: **Sample coverage at each survey round of the Nutrition Evaluation Research Study**

	Andhra Pradesh		Uttar Pradesh	
	Intervention	Comparison	Intervention	Comparison
	Coverage	Coverage	Coverage	Coverage
Baseline MOM[17]	2,375	2,503	2,443	2,452
	(80.1%)	(87.3%)	(78.2%)	(82.5%)
CPW[18]	574	631	734	703
	(75.2%)	(81.2%)	(86.0%)	(86.9%)
Adequacy I MOM	529	556	548	520
	(81.1%)	(75.6%)	(79.9%)	(82.1%)
CPW	120	140	133	136
	(72.7%)	(76.5%)	(77.8%)	(73.1%)
Adequacy II MOM	498 (82.2%)	576	542 (80.7%)	531
		(65.7%)		(81.7%)
CPW	87	161	191	164
	(67.4%)	(70.3%)	(80.3%)	(76.6%)
Endline MOM	2668	2878	2512	2403
	(80.3%)	(80.6%)	(78.8%)	(87.4%)
CPW	550	770	761	704
	(68.0%)	(70.4%)	(87.8%)	(79.3%)

[17] Mothers of children 0-23 months old. About half these numbers would be expected to fall in the target group for estimating nutritional status (12-23 months)

[18] CPW: currently pregnant women

Table 2.15: **Sample coverage in the Newborn Evaluation Research Study**

Data collection round	Respondents	Data collection period	Sample size	
Baseline	All households in study area	Jan–Jun 2003	26,595	29,560
	All ever-married women aged 13-49		22,845	26,420
	Women who had a live birth or still birth		6,490	9,220
Adequacy I	Women who had a live birth or still birth	Jan–April 2004	832	927
Adequacy II	Women who had a live birth or still birth	Sept–Oct 2004	807	936
Adequacy III	Women who had a live birth or still birth	March–May 2005	819	932
Endline	All households in study area	Jan–March 2006	29,517	32,319
	All ever-married women aged 13-49		27,112	29,263
	Women who had a live birth or still birth		7,525	9,792

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About RACHNA

Two major projects of the Reproductive and Child Health, Nutrition and HIV/AIDS (RACHNA) program of CARE-India completed five years of work supported by funds from USAID in late 2006. The second phase of Integrated Nutrition and Health Project (INHP-II) was aimed at helping reduce child malnutrition and mortality. The rural component of the *Chayan* project primarily addressed the unmet need for spacing methods, while its urban component attempted to reduce HIV transmission among at-risk groups. Together, the projects covered 78 districts and 22 cities, spread over 10 states, and worked closely with key national programs and a spectrum of different partners. This series of working papers documents the results and lessons from these five years.

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Executive Summary: What we have learnt so far

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Paper 4 : Changing Infant and Child Feeding Behaviors

Paper 5 : Widening Coverage of Micronutrient Supplements

Paper 6 : Supplemental Feeding: It's Role in a Large Scale Maternal and Child Nutrition and Health Program

Paper 7 : Widening Coverage of Primary Immunization

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