Preliminary report of the Andhra Pradesh Health and Health Systems Responsiveness Study 2001

Ms. Lipika Nanda¹

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THE INSTITUTE OF HEALTH SYSTEMS

¹ Sr.Faculty, The Institute of Health Systems, HACA Bhavan, Hyderabad 500 004 India

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The Institute of Health Systems
HACA Bhavan, Hyderabad, AP - 500 004, India
Ph: 91-40-23210136/9,23211013/4; Fax:91-40-23241567

Email: ihs@ihsnet.org.in

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Lipika Nanda¹

Introduction

It is evident that health systems in some countries perform well, while others perform poorly. This is not just due to differences in income or expenditure, as we know that performance can vary markedly even in countries with similar levels of spending (World Bank, 1993, Preston, 1986). Health sector reform, for its performance enhancement has become important because the way health systems are designed, managed and financed affects people's livelihoods.

Health of the population is the ultimate goal of any health system. This requires nations to be able to understand and assess where one's health system stands. Traditionally, the success of any nation's health system was assessed by looking at mortality figures only. But, with the epidemiological transition having its impact in all developed countries and most developing countries, resulting in reduction in the communicable diseases and increase in the nonfatal and chronic diseases, the traditional indicators have been insufficient to assess health systems. This then means that both premature mortality as well as disability both needs to be taken into consideration while trying to measure the health status of the entire population (Murray & Lopez, 1996).

Apart from the above indicators there are also other indicators that health policy researchers have been referring. Using meaningful combinations of the indicators globally in order that some are not in a disadvantageous situation is a big challenge to health policy researchers. All this is possible only if we have appropriate indicators to measure the performance of any health system. The difference between a well-performing health system and one that is failing can be measured in terms of death, disability, impoverishment, humiliation, despair and many more ways. But the challenge lies in developing and validating appropriate tools for measuring health systems performance which becomes important because not only is it a means to identify the short comings of the health system but also indicators that allow evaluation of a health system over a period of time. Both these activities in turn could contribute in the future to a pool of evidence that can provide the basis for confirming or rejecting if specific health sector reforms like financing and provision mechanisms are particularly appropriate/inappropriate under given socio-economic conditions or if a change in the health policy has resulted in a positive/negative health outcome.

Empirical evidence supports the hypothesis that patient satisfaction linked to behavioural aspects of care, is often associated with better compliance with treatment instructions, seeking of care and a better understanding/retention of medical care information (Murphy-Cullen & Larsen,1984). Therefore it should seem that better responsiveness captures better health performance. It may however be argued that achievements in the responsiveness domains contribute directly to patient welfare, as well as through improved health. The greater the concern of the health system to the expectations (legitimate) of individuals' regarding the behavioural aspects of care, the higher will be the level of welfare achieved, irrespective of its impact on health. In other words while the ability to access emergency medical care promptly

¹ Lipika Nanda, the principal investigator of APHHSR Study, is currently working as a senior faculty, Institute of Health Systems, HACA Bhavan, Opp Public Gardens, Hyderabad-500004, email-ihs@ihsnet.org.in



contributes to better survival rates, the knowledge of the ability to access emergency medical care provides peace of mind, that has an intrinsic value in its own right (DeSilva, 1999).

In this study we have been keen on understanding the responsiveness of the health system of Andhra Pradesh as a whole because this allows us to consider all the different elements in a health system, public and private provision, modern and traditional systems of medical care simultaneously, which is most relevant since it reflects reality at the state level. This study has not just looked at the generic responsiveness within Andhra Pradesh but also issues of distribution of this responsiveness with regard to different social and economic groups.

I. Health Systems Goals

Health system performance goals involves primarily three discrete aspects: clinical/medical, responsiveness and fair financing (Murray & Frenk, 1999).

Clinical medical goal refers to the ultimate goal of any health system to improve the health of the population, both mortality as well as morbidity resulting in nonfatal health outcomes (WHR 2000). Fair financing refers to the assurance given by health system to the general population that they do not become bankrupt or pay a big share of their income in order to get health care. The level of resources invested in the health system is the variable against which goal attainment is compared in order to measure performance (Murray &Frenk, 1999). Responsiveness, the third goal refers to the legitimate expectations of the population for the behavioural (nonmedical) dimensions of their interaction with the health system². These dimensions are not directly linked to the health outcomes but are linked in a way which leads to general satisfaction and trust with the health system, which then is linked to the health outcomes. There is substantial empirical evidence showing that, there is an indirect and distinct link between positive responsiveness domains to health outcomes. Responsiveness expressly excludes the expectations of the public for the health improving dimensions of their interaction, as this is fully reflected in the first goal of population health. Responsiveness is not just a measure of how well a system responds to health needs, which is reflected in health outcomes. It is also a measure of how the system performs to behavioural aspects, meeting or not meeting a population's legitimate expectations of how they should be treated by providers, issues of choice, time taken to access care and so on (WHR 2000).

II. How can we measure responsiveness?

One of the ways that responsiveness can be understood is by making a distinction between elements related to respect for human beings as individuals, that are largely subjective and judged primarily by the patient/client, and more objective elements related to how a system meets certain commonly expressed concerns of patients/clients and their families as consumers of health systems, some of which can be directly observed at health care facilities. Subdividing these two categories i.e., a) *Respect for persons*, b) *Client Orientation*, leads to eight distinct elements or aspects of responsiveness (WHR 2000). The different domains of health state responsiveness measurements can be detailed as below:

1. Respect for the dignity of the person means that patients are not humiliated or demeaned. More specifically, it assess whether patients are shown respect and have their physical examinations conducted in privacy. Respect for dignity also includes

² The term "legitimate" is used to recognize that some individuals may have frivolous expectations for the health system which should not from part of the articulation of this goal.



aspects such as courtesy and sensitivity to potentially embarrassing moments (World Medical Association, 1981,1995, Grol & others 1999, Gross & others 1998, Kenagy & others 1999, Lim, & others 1998, Morris 1997 and Hembree 1996, Rylance 1999).

- 2. Respect for Autonomy refers to the ability of any individual to participate or make choices about his/her own health. Individuals, when competent, or their agents, should have the right to choose what interventions they do and do not receive (Brock,1993, Avis & others 1997, Charles & others 1997).
- 3. Respect for Confidentiality refers to the right to determine who has access to one's personal health information/records. In interacting with the health system, individuals should have the right to preserve the confidentiality of their personal health information (Rylance 1999, Beuchamp 1989, Grol & others 1999, Denley and Smith 1999).

The second sub-component, *client orientation*, includes the major components of patient satisfaction that may not necessarily be a function of direct health improvement:

- 1. Prompt attention refers to the scope of immediate attention in emergencies, and reasonable waiting times for non emergencies that any health system provides for its users (Collins 1996, Etter & others 1996, Lim, & others 1998).
- 2. Basic amenities of adequate quality relates to issues of cleanliness, space and provision of food, such as clean waiting rooms or adequate beds and food in hospitals are aspects of care that are often valued by the population (Benhart et al, 1999, Collins 1996, McIver 1991, Minnick et al 1997).
- 3. Access to social support refers to the access to networks, family or friends of people receiving care in a health facility. An expectation to have access to social support through family and friends during care and recovery is an intrinsically valued attribute. (Gilson & Heggenhougen, 1994, Cleary et al 1991).
- 4. Choice of provider refers to the freedom that any health systems provides to select a provider or a facility that delivers health care (Collins 1996, Campbell 1994, Hall et al 1994).
- 5. Communication of information has been added as an eighth dimension. It refers to the emphasis the provider gives to patients in explaining a health condition and the course of treatment that follows along with its implications.

Along with health, society is concerned not only with the average level of responsiveness but also with inequalities in its distribution. This means that it is important for any health system to understand differences relating to social, economic, demographic and other factors and at the same time to enhance the responsiveness of the health system to the legitimate expectations of the population for behavioural dimensions of their interactions with the health system (WHR 2000).

The APHSR Study 2001

I. Drawing the sample

The Andhra Pradesh Health System Responsiveness study has used a multistage stratified random sampling procedure for the selection of clusters. The size of the cluster was determined as 25 households in urban and rural places. A total of 221 representative clusters were selected statewide using a PPS (probability proportionate to size) method. The clusters have been drawn using a random number generator application software, *StaTool*, developed in-house at Institute of Health Systems.

I. First Stage Stratification:

In the first stage stratification, the entire Andhra Pradesh has been divided into Rural, Urban (Municipalities), Urban (Municipal Corporations) and Hyderabad. Hyderabad has been classified as a different strata because it is not organized properly like other districts and there was a large scope of sample overlapping. In order to avoid this error, Hyderabad has been classified as a different strata. The following table shows the first stage stratification details.

Table.No.1:	The first stag	ge stratification	plan for	Rural.	Urban and	Hvderabad:
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Strata. No	Strata Type	Total Pop.	Prop.	Total Clusters	Sampled Clusters
1	Rural	48620882	0.75	67512	166
2	Urban (Corporations)	2992374	0.05	288	10
3	Urban (Municipalities)	8799204	0.13	3038	30
4	Hyderabad Polling stations	434447	0.06	3351	15
	Total	64756897	1	74239	221

II. Second Stage Stratification:

In the second stage stratification, the sampled clusters were selected using Probability Proportionate to Size method.

A. Method followed for selection of Rural Clusters

During the second stage stratification all rural clusters of entire state except uninhabited habitations (with population zero) were divided into 4 sub-stratas based on their population. Rural clusters with population less than or equal to 1000 formed the 1st stratum, between greater than 1000 to less than 3000 formed the 2nd stratum, greater than 3000 to less than 5000 formed the 3rd stratum and above 5000 the 4th stratum. Then rural clusters were selected using Probability Proportionate to Size method to select the clusters. A total of 166

rural clusters were selected out of existing 67512 habitations. The numbers along with the details are as shown below:

Table.No.2: The second stage stratification plan for Rural:

Strata. No.	Strata Type	Total Pop.	Prop.	Total Clusters	Sampled Clusters
1	Population Less than or equal to 1000	16336073	0.32	49953	53
2	Population > 1000 and Less than 3000	19526652	0.38	11715	63
3	Population > 3000 and Less than 5000	6523953	0.13	1740	21
4	Population >= 5000	8963626	0.17	928	29
	Total	51350304	1	67512	166

B. Method followed for selection of Urban Clusters (Corporations):

All Urban clusters (Corporations) of entire state except Hyderabad were formed a single strata based on their population. Then the wards from these corporations have been selected using Probability Proportionate to Size method. A total of 10 urban clusters were selected out of 288 urban wards. The numbers are shown below:

Table.No.3: The Second stage stratification plan for urban clusters (Corporations):

Strata. No.	Strata Type	Total Pop.	Proportion	Total Clusters	Sampled Clusters
5	All Corporations	2992374	1	288	10
	Total	2992374	1	288	10

C. Method followed for selection of Polling stations in Hyderabad:

During the second stage stratification all polling stations in Hyderabad formed two different strata based on number of Voters. All polling stations with voters less than or equal to 1000 formed the 1st stratum and greater than 1000 formed the 2nd stratum. These polling stations were selected using Probability Proportionate to size method. A total of 15 polling stations were selected out of existing 3351 polling stations. The numbers are shown below:

Table.No.4: The Second stage stratification plan for Hyderabad Polling Stations:

Strata. No.	Strata Type	Total Pop.	Proportion	Total Clusters	Sampled Poll. stns.
6	Number of Voters Less than or equal to 1000	1354489	0.42	1861	6
7	Number of Voters Greater than 1000	1854156	0.57	1490	9
	Total	3208645	1	3351	15

D. Method followed for selection of Urban Clusters (Municipalities):

In second stage stratification all Urban clusters (Municipalities) of entire state formed 2 strata based on their population. All Municipalities with population less than or equal to 3000 formed the 1st stratum and greater than 3000 formed the 2nd stratum. These urban clusters



were selected using Probability Proportionate to size method. A total of 30 urban clusters were selected out of existing 3038 urban wards. The proportion is shown below:

Table.No.5: The Second stage stratification plan for urban clusters (Municipalities):

Strata.No.	Strata Type	Total Pop.	Prop.	Total Clusters	Sampled Clusters
8	Population Less than or equal to 3000	3931938	0.44	1984	13
9	Population greater than 3000	4867266	0.55	1054	17
	Total	8799204	1	3038	30

III.Third stage

A. Obtaining Household Rosters:

After the sample of clusters were drawn, their respective districts and mandals were identified. A team from IHS visited the respective Mandal Revenue Officers or the Municipal Commissioners to collect the Voter's list/Household registers of those clusters. This was done in order to prepare the sampling frame of the households. This process also enabled the team to get information about the local contacts, accommodation for the survey team that visited subsequently.

Once the Voter's list/Household registers were received, the households were numbered in a sequential manner. Then a sample of 30 households was drawn using a *StaTool* - *random list generator*. A household sampling brief was prepared with all the necessary information about that habitation/ward, which was later used by the survey team.

II. Planning and organisation before the survey

The AP health and health systems responsiveness survey was conducted on a representative sample of 5134 households. These households included urban areas, rural areas and sometimes interior or tribal areas. As the whole survey was very complicated it was very important to built in some system which will enable surveyors to do some division of work and also bring in some quality assurance to the survey process. The whole process of survey involved a series of activities which could not be done by single surveyors. The following steps were taken to ensure that survey process is smooth.

A. Translation of the instrument to the local language

The instrument was developed by the World Health Organisation and had inputs from the participating countries. It was then translated and adapted into the Telugu language and culture by the Institute of Health Systems. A team of editorial experts translated the instrument through the process of translation and back translation, following the guidelines provided by the WHO. This process was an extremely tedious one and consumed a lot of time. After effort was put into this task for about 30 to 40 days, the translated instrument was ready for field testing. While translating the instrument out most care was taken to ensure that the contextual reference remained the same. The APHSR instrument had several sensitive sections in it, i.e., on fertility, income, sexual life, alcohol & drug usage etc. People in Andhra Pradesh are generally inhibited and would not have liked to reveal such information due to many other factors having consequential implications involved. So having appropriate translations based on experiential equivalence to have a culturally appropriate instrument was a major task in this study.

B. Recruitment of surveyors

In order to ensure the quality of the survey only persons with a postgraduate degree in social & behavioural science like psychology, sociology, social work, anthropology, mass communication were considered for recruitment for the position of surveyors. Not only was the academic qualification a criteria for selection, but two other faculty apart from the principal investigator also interviewed a candidate to understand the value systems, whether there was any tendency to compromise for a lesser quality work in crisis situation and ability to maintain interpersonal relationship in a group. A copy of the expected working environment as well as a copy of the capacity statement of the institute was given to all the aspiring candidates, so that they have a knowledge of what is expected of them through the study process. Once the candidates were appointed they were given a copy of the "general guide", "service manual" and a "project brief" to be well acquainted with the rules and procedures of the institute and the project. Finally a team of 30 surveyors was constituted. Some were newly appointed and some were from the existing staff of the Institute of Health Systems.

Care was taken to ensure that the whole group had a balance of male and female surveyors. Once the recruitment process was over and the team was constituted then a training programme on the responsive methodology for one week was announced for this group.

C. Training of the surveyors

A training programme for the duration of one week was designed by the principal investigator. A training packet was also prepared for the participants of this training programme. The 1st day of the training programme covered basic presentations like goals of any health system and the state of health of the Indian population with respect to the developed countries. Some topics on the importance of health systems performance assessment were also discussed. On the second day, emphasis was given to some theoretical aspects of the survey techniques, methods and different persuasion methods. Ethical and human aspects were discussed during the discussions of this day. Some aspects of sampling methods were also introduced to the participants. The major objectives of sampling and conducting a survey on a representative sample was discussed in detail in an interactive session. The participants were also introduced to the Leslie Kish tables and filling up the household rosters. This was done with the help of a lot of simulations (made up stories) where each participant had to fill up a roster as per the story. This led to clarification of a lot of doubts as well as mistakes on the part of the surveyors. The next three days dealt with individual sections of the instrument. This gave an opportunity to change some of the wordings of the questionnaire and further refine the translation process. The last two days were spent in field trips where the participants went to the suburbs and practised administering the instrument while using techniques and methods of persuasion. At the end of the field work the principal investigator discussed the issues that surveyors faced, dealt or could not deal with. Some common rules were agreed upon keeping in mind the objectives of the larger study.

A generic manual of the survey and question by question specifications along with a guideline prepared for the surveyors were also given to the surveyors for their reference. These manuals and guidelines answered most of the questions linked to the administration of the survey. The guideline had all the details of the expectation of the project from the surveyors. It dealt with all possible questions that anyone could have.

D. Team formation/ Team leaders

As mentioned earlier, this study was conducted on a representative sample of the households of Andhra Pradesh. This meant that surveyors had the possibility to visit remote and tribal areas too. Transportation service to the remote and rural area in Andhra Pradesh is not well organised. So the survey process involved a lot of difficulties that had to be faced by the surveyors. Moreover, the survey was very complicated, lengthy and required a bulk of questionnaires, weighing machines, instrument boards, rating scales etc. Life in the remote places also could be demoralising and demotivating for the surveyors who are highly qualified. It may not be safe for female surveyors to travel alone in remote areas too. In order to ensure that surveyors do not feel lonely, are safe, are a watch against each other for data quality assurance, 7 teams were constituted. Each team had four members, two male and two female surveyors. The principal investigator provided each team of four surveyors with a vehicle from a taxi service agency. Even though the whole proposition was expensive, the quality of the survey process had least possibility to be compromised. Each team was given a target of 50 surveys per week. This target was fixed keeping in mind the nature and length of the survey that had a tendency to fatigue any surveyor. A lot of the above mentioned precautions were taken to ensure that practicable targets were set for the surveyors.

One person among the team members was designated as a team leader. The team leader had the responsibility of managing the team and the survey. Whenever the team

reached a particular habitation or a ward, s/he had to contact the opinion leaders of that particular place. S/he had to explain the study objectives and the organisation that they represented. Then they requested the opinion leaders to help them in the survey process by providing them with some local youth, who would help them identify households and introduce the team members to the households. The team leaders had the flexibility to give a honorarium to these people for the amount of support provided. The team leader was also supposed to fill out the household rosters and select the respondent using the selection tables. S/he would then take appointment from the respondent and then assign surveyors to individual respondents. S/he would then conduct some interviews. His/her next responsibility was then to collect all the completed forms by the end of the day and check for possible errors. S/he would then sign on each of the checked forms. The teams were advised to be in touch with the principal investigator at least once in every two days. In case they did not keep in touch, the principal investigator would either send a messenger or try to be in touch with them with the assumption that something was wrong. These ground rules were commonly agreed upon before the surveyors left headquarters for the main survey.

The recruitment process not only aimed at the constitution of the survey team but also aimed at the constitution of a groundwork team as well as a data entry team. The groundwork team had the responsibility of collecting household registers and other contact name and numbers before a team started for a particular place. The data entry team had the responsibility of only doing the data entry while the surveyors conducted the survey.

E. Feedback on pilot used to improve the main survey

The pilot study experience was used an opportunity to improve the main survey. For e.g., most of the surveyors complained that the respondents became very restless and fatigued by the end of the interview as they had other work, at home or outside, to attend to. They felt that it seemed unethical on their part to force someone to sit and complete their survey for at least one to one and half hours. It was decided to divide the whole survey into 2 parts and conduct the survey in two sittings rather than one. This ensured that the respondents as well as the surveyors are not fatigued in the process.

The surveyors were advised to conduct the interviews only during the early mornings and late evenings. They were also advised to interview women respondent in the evenings and the male respondents in the mornings. This was advised keeping in mind the tendency of the males to indulge in drinking liquor during the evenings after coming back from a hectic day in the fields. Mornings were usually very busy for the females. They had to prepare breakfast and lunch before the other family members left for their work. This way the survey could maximise from the existing and prevailing customs of the state.

A stainless steel lunch box, as a token of appreciation for the time spent on the interview, was given to the respondents during the pilot survey. Some of our surveyors suggested that the respondents wanted money equivalent rather than the gift as it was not useful for some of them. So it was decided to compensate them for two hours of their daily wage. This was also suggested to us by our ethics committee when it approved our project.

Our pilot findings also showed that the reliability of the health systems responsiveness section was very low. A point to note here is that the responsiveness section was the last section of the interview. One possibility was that the respondents as well as the interviewers were so fatigued that the answers were unreliable. This issue was dealt by keeping the responsiveness section as the third section as against the sixth section. The name of the study

was responsiveness study and so it should be given maximum priority by keeping it in a section in the first part rather than in the last part.

Some common errors linked to administration of the survey were also emphasized during the course of retraining mentioned in the next section.

F. Retraining and some refinement before the main survey

The instrument underwent a lot of changes after the completion of the pilot study. It was necessary for the participants to again undergo training on those sections. There was a small turnover of a few surveyors quitting and a few joining. A few surveyors could not cope up with the pressure of the lengthy survey as well as the difficulties associated with staying away from their families and adjusting to the lifestyle in a rural/remote setting. The new ones were given a separate orientation of the survey. Then all the surveyors (old and new) were given training on the changed aspects of the study instrument. By this time the surveyors had already had some experiences from the pilot study phase. A number of issues linked with the survey were discussed and resolved. There were some changes in the team constitution and leadership as some leaders could not cope up with their work while there were some other surveyors with good potentials and leadership qualities.

G. Imparting camping skills to the surveyors

As most of our surveyors had education in the universities, located in the urban areas, they had least experience of conditions prevailing in the rural and remote areas. Some training on camping skills, like carrying minimum cooking materials, sleeping bags, clothing etc. was given to the surveyors. Some of them were fast learners and learnt the ways during the pilot phase. Others learnt from their colleagues and the tips given by the principal investigator.

H. Groundwork before the survey

Once a list of the sampled habitations and wards was prepared, a research assistant was sent to each of the habitations or wards in order to collect the household registers for the next stage sampling (sampling of households from the cluster) as well as collect information regarding the important contact persons, administrative machinery, opinion leaders, places to stay etc. These people also informed the locals that a team from the institute would be coming soon to visit them. This not only prepared the local people there but also enabled our team to work out the path to take and the strategies to follow in different places. For e.g., the groundwork person to one of the districts with remote tribal and naxalite movement was advised by the administration there that it would be very difficult for our teams to reach and work there as outsiders. This situation was dealt by appointing a local person of that place as a coordinator and requesting him to do the coordination and explaining to the local people there. This made the whole survey process in that district very smooth. As we had their local person, our team did not have to face the acceptance problem from the locals.

I. Printing of the survey questionnaire

The survey instrument was not only lengthy but the organisation of the questionnaire was also very complicated. There were several variants (128) of the questionnaire. One of the major challenges was in the organisation of the questionnaire so that a lot of pressure was not placed on the surveyor. If we had followed a normal approach then we would have to give copies of all the variants of all the sections to the surveyor and left him/her to arrange the questionnaire before the interview. It would have been dangerous to leave so much to the

surveyor and any mistake on his/her part would not have been cost-effective at all. So we followed a procedure so that the questionnaire is arranged in the combinations and all that the surveyor needed to do was to carry the questionnaire and make a note of the serial number. Once we knew the serial number, we would know what is the combination of that particular record from our database.

III.The Main Survey

The APHSR main survey started during the first week of December, 2000 and continued until the second week of April. As the nature of the survey and the content of the instrument was very complicated, it was necessary to make sure that the surveyors were provided with all necessary information before they went to any habitation or ward.

A. Taxi service from a travel agent

As mentioned elsewhere a vehicle was provided to each team for travelling linked to the survey. As seven team were formed, similar number of taxis were also booked from a local travel agent to carry the surveyors to their area of destination. This made the transportation process quite smooth and easy for the surveyors. This arrangement kept their morale quite high irrespective of the difficulties and hurdles faced by them during the course of the interviews.

B. Mid-survey retreat: for missing and implausible data

A mid-survey retreat was organised when the survey was halfway to deal with issues relating to the survey. As soon as half the data was entered and cleaned, the principal investigator looked for two types of error patterns. One was for missing data and one was for implausible data. If some surveyors showed a pattern of missing out data, then their problem was pointed out and they were strongly urged to be more careful. If some surveyors had collected implausible data then they were asked to explain individual situations on a per record basis. For e.g., if a male person was asked questions on birth history and the information was also collected, this became implausible data. If the overall health was described as very good or very bad but all the other dimensions were described as just the opposite. This made the surveyors be careful and cautious during the data collection process. Surveyors with a tendency for either type of data deficiencies were counseled on an individual basis. Even though it is known that with any amount of training and checks and measures, some amount of deficiency is bound to happen maximum effort was put to ensure that the incidence of deficient data is reduced to a minimum. The objective of the mid-survey retreat was also to make the surveyors feel as part of the survey and give a vent to their pent up feelings. Each team leader was asked to speak about their experiences, good and bad, and give certain tips and advice for things that worked for them. This session was also designed to give a feeling to the whole group that they were already half way through!

C. Field visit by the principal investigator

The principal investigator and the site coordinator made regular field visits to the sampled habitations and wards. Even though the visits were little infrequent during the early phases, i.e., the first month of the study, they made regular visits to the sites in order to ensure that the survey was being carried in a smooth manner and there were no evident problems. They also served as messengers to carry forms back to the headquarters for data entry and cleaning. If there was any issue to be dealt with, it was dealt quickly, rather than waiting for the whole team to come back. The principal investigator also took this opportunity to thank the local administration as well as the local leaders in making the survey process possible.

The principal investigator also got an opportunity to understand the practical problems faced by the surveyors and took necessary action to solve the problems as much as possible. These visits were also planned to boost the morale of the surveyors in a way so that all the surveyors had an opportunity to feel part of the whole project and give valuable suggestions. Some of the suggestions were then incorporated to the project in order to make the implementation smooth. Some methods were discarded and new ones were adopted in order to reduce the administrative hurdles/obstacles faced by the survey personnel.

IV.Data entry and Data Cleaning

A team of 13 data entry personnel were recruited on a temporary basis in order to complete the data entry job. Each record had to be entered twice so that data entry errors were reduced to a minimum. No one person was given the same form to enter it for the second time. A log was maintained in order to keep a record of who was entering what and for what time (first or second time). The data entry stage was used as a first stage of data cleaning. This opportunity was used to also send the surveyors or collect the data that was either missed out or was not filled by mistake. For e.g., the names of respondents, age, gender etc., were common fields where the values were missed out. The team leaders kept a log of the respondents that their teams interviewed. So it was easy to get this type of information here. But major mistakes could not be retrieved by this method. A log was maintained regarding surveyors that were missing a lot of information. This reduced the errors and missing information to a great extent. This process enabled retrieve the information to some extent but information that was not collected at all were problematic ones. Retraining was given to some of the surveyors so that they did not miss out the questions. Further, this process also made it clear that some surveyors were found to be unsuitable for this survey and were deployed for some other work.

After the whole database was ready, each section was checked thoroughly and with great detail to look for errors in data entry as well as data collection. The test records were separated from the retest records. All the paper records were manually and physically filed in order to make physical data retrieval easy during the process of data cleaning.

V. Management Information System to assist monitor & coordinate the survey

A MIS (management information systems) was designed in order to have full knowledge of where the whole survey was at any point of time. The MIS consisted of forms, database programs designed to collect information on the work of the groundwork team, the survey team and the data entry teams.

A. For the groundwork team

i. Checklist of the information to be collected by the groundwork team:

A checklist of the minimum data that needed to be collected from the habitations by the groundwork team was prepared. A copy of the same is attached in the annexure. This basically helped the teams organise themselves with the basic information before they left for the field. A standardised form reduced the probability of a particular information being left out by the groundwork team. If a particular person missed out some information then s/he was retrained not to miss out the most important information. A copy is attached as annex 1.

ii. Reference, field copies and assigned habitations folders checklist



Once the groundwork team person returned to the headquarters, he gave the required information to the bio-statistician. The bio-statistician then checked whether all the required information was available so that he could proceed to the next step. Once he had everything, the next stage sampling was done to identify the households from the already selected habitation or ward cluster. He entered all the information in an electronic file (a template MIS) and saved the information under that particular district. Then the complete household register and the sampling brief is photocopied to make two copies. One copy is stamped as "reference copy" and the other is marked "field copy". The field copies are supposed to be carried by the surveyors and the reference copies are to be kept in the headquarters. In case a field copy is lost then another copy can be prepared from the reference copy. If any habitation is a retest sample then a stamp of "retest sample" is also marked in those copies. Three box files are maintained. The first box file contains all the reference and field copies as soon as they are ready. The second box file is named "Assigned habitation/wards". The moment any habitation or a ward is assigned to any particular team then that field copy is given to the teams while the reference copy moves to this file. This enables the project coordinator to assess at any point of time which are the habitations/wards under survey. As soon as the team completes the survey of that habitation/ward and returns the forms along with the household register and briefs, these are transferred to the third box file named "Completed Habitations". An electronic version of this database is also maintained. The electronic version (a screen copy of the MS Access table is attached as Annex 2) gives information about the exact date the team was assigned the habitation, the date of completion as well as how many surveys they could complete in that habitation.

iii. Progress report of the status of the preparation of the sampling briefs

A template of the status of the preparation of the sampling briefs gives an idea as to how much target has been achieved by the groundwork team. This report is generated once every week to show how many districts have what percentage of the target complete. If some groundwork member is on the job, since when he is on the job, when did he return back and what is the status of the registers. For e.g., it showed whether someone is on the job, returned back on such and such date, registers received but not marked, registers received and marked etc. This progress report also showed what percentage of the total target (whole state) had been achieved by the team. A sample report is attached as Annex 3. An electronic template was designed to monitor progress of this work. Some formulas were built into the sections and the numbers have just to be entered to get the full picture of the %s of remaining work at hand. This helped in assigning needed human power to different aspects of work. If some steps looked to be a bottleneck for the completion of work, for e.g., if the report showed that a number of household registers had been completed but sampling briefs had not been prepared then instead of sending people to collect more registers, these persons were urged to complete the sampling brief work. This feedback helped the principal investigator make sure that the briefs were prepared before a big backlog had built up.

iv. Assessment of the quality of the individual groundwork team members work

A form had been designed to find our whether the groundwork team put in enough effort in the collection of the required data or not. This form was filled out once the teams returned from the habitation/ward. They were asked a few standard questions on the quality of the groundwork done like, whether the contact name and the numbers were correct, whether the people had been briefed regarding the teams' arrival etc. The feedback is then passed on

to the concerned person who were advised to rectify the mistakes on their next visit. A copy is attached as Annex 4.

B. For the survey team

i. Daily reports

Each surveyor was supposed to fill out a daily report based on his/her experiences in the field. This standardised report had a section on the date, area visited, names of the respondents interviewed, problems encountered while identifying the households, problems encountered while interviewing the respondent, learning experiences that can be shared by all the members and feedback about the overall experiences for that day. The team leaders encouraged the team members to complete these reports at the end of each day.

These reports are stored in an electronic database and helped understand as to how many surveys is completed by each surveyor per day, the common problems they are faced and some learning experiences. A copy is attached as Annex 5.

ii. Case studies of individual habitations/wards

Each team was given instruction to write case studies of the habitations/wards visited by them. No standard format was given. The purpose of these case studies was to collect valuable qualitative information that would not have been captured elsewhere. Interesting anecdotes, funny or terrifying experiences formed the bulk of these case studies along with any perceivable health need that was evident to naked eye. Surveyors were also asked to visit the primary health centres/subcentres and see the condition and staff manning them to have some understanding whether the population had any public health care facility available for them or not. Team leaders were also instructed to take photographs for the case studies to make them meaningful at a later time.

iii. Progress report of the overall survey

This was a standard report that was prepared every week. This has a section on the target habitations and wards along with the retest target. One section gives information about the habitations/wards that have already been surveyed by that week, started the previous week and continuing through the present week, while another section gives information about the habitations/wards that have been taken up in the present week. This report gave a complete picture of % of habitations/wards for which survey is completed, % of habitations/wards for which the survey is continuing, % of retest habitations/wards for which survey is continuing as well as completed and finally the % of habitations/wards that are yet to be surveyed. A look at this report every week gave an immediate impression as to how much more time was left for the survey and the retest survey to be completed.

An electronic template had been designed wherein all the formulas are entered and all it needs is entering the numbers of assigned and completed habitations. All the rest was automatically tabulated. A sample copy is attached as Annex 6.

iv. Progress report of individual team members as to many backlog forms they had and what was the quality of the work their team was doing

This was also a stardardised report which was generated end of every week. If teams were on tour for more than one week then it was generated on their arrival. This report gave an idea as to how many new forms had gone out to the field by individual teams and how

many had been returned. It collected information on "Prev = Previous i.e., as on last reporting date; Crnt = Current, i.e., during this period; Cum = Cumulative, i.e., in total. These time frames were used for collecting information on "empty forms taken", "filled forms returned", "surveys completed" and "total # of forms to be returned". In addition to this data, some data on the number of errors in the process of data collection by individual groups, divided into two categories, were also collected. The two categories were errors that were "key to the study" and "minor errors". When teams returned from field work, the principal investigator was in a position to understand how much backlog forms were still pending with the team leader and also the pattern of errors that teams were committing. A little retraining was given to specific teams so that they could avoid errors at any future time.

An electronic template for the same was designed to generate reports in an easy manner as the output data section has inbuilt formulas. A sample copy is attached as Annex 7.

v. Data Register

An electronic as well as a paper format register was maintained to locate the information of each and every questionnaire. Each questionnaire had a serial number. This database gave the exact location and status of any particular questionnaire at any point of time. The different probable status were "to the field", "back from field", "2 times data entry completed" and "sent to WHO". If there was any confusion regarding the status of a particular questionnaire, then this data register was accessed to give further information as to where it could be or which was the last point when it was followed up to. A copy of the screen print of the MS Access is attached as Annex 8.

C. For the data entry teams

i. Data entry progress logs

This is a standardised log which monitors the progress of data entry by individual data entry operators. A look at this log gives an idea as to how many records are being entered by individual entry operators. This knowledge helps understand the balance between the capacity of data entry operators and the backlog of questionnaire. It also gives an idea whether there is a huge backlog of records that needs to be entered or a situation where there are no questionnaires in the headquarters to be entered and the data entry team has no assigned work for the next few days. In such situations a messenger is send to the field to collect forms from individual teams. A copy is attached as Annex 9.

ii. Log of missing entries

Once a record is entered twice data entry for that particular record is considered to be completed. The next step is data cleaning. Here an experienced data entry operator or the system administrator does this job along with the site coordinator of the study group. During this process errors in the data entry is detected and corrections made. If some data entry operators are found to be committing more errors then they are reported about it. If after repeated feedback that person continues committing errors then s/he is not allowed to do any more data entry. A sample copy of this log is attached as Annex 10.

II. Health Systems Responsiveness

Health systems responsiveness refers to the legitimate expectations, usually the non-health (behavioural) dimensions that the users of any health system may have during their interaction or contact with the system itself. The AP Health Systems Responsiveness Survey collected information on several aspects of individuals perceptions regarding their usage of and interaction with the health systems. A time window of the previous 12 months was determined while asking questions relating to their personal experiences of the health system.

Table 16: Type of health care received during the previous year, AP 2000.

	Urban		Rural		All State		Total
	Female	Male	Female	Male	Female	Male	
Respondents in the sample	660	564	2080	1830	2740	2394	5134
Received health care	68.8%	55.3%	70.2%	64.6%	69.9%	62.4%	66.4%
Received home care	1.1%	0.4%	4.4%	2.3%	3.6%	1.8%	2.8%
Received out-patient care	66.1%	54.1%	61.3%	58.9%	62.4%	57.8%	60.2%
Hospitalisation (stayed overnight)	7.9%	4.3%	9.3%	8.6%	8.9%	7.6%	8.3%

Of all the respondents that were interviewed, 66.4% had actually received any form of health care during the past 12 months from the time they were interviewed. 69.9% of the females and 62.4% of the males that were interviewed had received some type of health care during the past one year. This number seems to be very high. But there is great possibility that people may have included any sort of preventive health care, like immunisation, health campaign programmes, etc., as receiving health care.

When we look at the people that have been using home care they seem to constitute a very small percentage of all of the respondents. They constitute 2.8% of all the people that have been interviewed. When we look at who are using these services we find that 3.6% of all females and 1.8% of all males are using home care services. We also see that the major usage is in the rural areas. This is consistent with the fact that home care is provided by regular visits from the ANMs (auxiliary nurse midwife) from the primary health centres and subcentres. This facility is not available in the urban areas. The small proportion of urban people that are receiving home care may primarily be from family physicians, neighbourhood physicians or other health providers.

60.2% (3093) of all the respondents, interviewed, have received health care on an out-patient basis. This confirms our earlier hypothesis that most people have been using health care on an ambulatory basis. Of course, these people may also be availing some home care service as well. Most of the primary health centres in the rural areas do not have proper facilities for hospitalisation. People in the urban areas have access to health facilities and do not prefer to be hospitalised unless they are forced to.

Of all the respondents only 427 had been hospitalised (stayed overnight) in any health care institution. This is around 2.8% of the whole sample. This shows that most of the health care received by people is not primarily at home. People may be preferring to receive health care on an out-patient basis unless otherwise required. We also see that the rural people to have used the overnight facility more than the urban people. Rural persons may be resorting to a safe practice of recovering well before returning back home. We also see that the more females belonging to the rural areas are staying overnight in health care institutions. This pattern of females staying overnight in health facilities more than males has also been studied



in other studies (PSS, APVVP, 2000). The reason has been attributed to the fact that females generally prefer to stay in health facilities as they do not have other people to care for them and generally are able to receive some rest from house-chores while sick. When the male members are sick they can expect the women members in the house to take care of them and as a result do not prefer to stay overnight in hospitals/health facilities.

We also looked at when was the last time people had visited a health facility for their health needs We found that 24.2% of the respondents had made a visit within the last 30 days of the interview, 19.4% had made a visit within the last 3 months, 8.6% within the last 6 months, 6.5% within the last 6-12 months and 1% could not recollect when they visited during the previous year. Here we see that 60.8% of our urban sample and 61.7% of the rural sample had made a visit to any health facility during the previous year.

	Urban			Rural			Total
Last visit to a health facility	Female	Male	Total	Female	Male	Total	
Total Respondents	660	564	1224	2080	1830	3910	5134
In the last 30 days	27.7%	19.7%	24.0%	25.4%	22.8%	24.2%	24.2%
In the last 3 months	21.4%	14.4%	18.1%	20.1%	19.5%	19.8%	19.4%

8.0%

9.9%

0.9%

1.8%

7.9%

8.3%

0.5%

1.9%

54.6% 60.8% 62.8%

8.8%

6.0%

0.6%

1.8%

8.8%

5.8%

1.7%

1.8%

60.4%

8.8%

5.9%

1.1%

1.8%

8.6%

6.5%

1.0%

1.8%

61.7% 61.5%

Table 17: Time of last visit to any health care facility by the respondents

7.9%

7.0%

0.2%

2.0%

66.1%

In order to be able to assess the dimension of prompt attention, we looked at the average time that people took to reach a destination of health care facility from the time a health need arose to the time they were actually able to get health care. This also we catergorised in terms of setting as well as gender. We saw that of all the respondents that actually used any health care service, the average time taken for any urban female was 56.4 minutes and for an urban male was 55.2 minutes. There is not much of any difference between urban male and urban females. The average time taken for any average urban person to reach a health care facility and get first contact is 55.8 minutes. Looking at the substantial growth of the private health sector in the urban areas, the average time looks to be quite reasonable. This indicates that the access to any health care facility is quite good in the urban areas.

Table 18: Average time taken for people to access health care in different settings

	Urban		Rural				
Female	Male	All Urban	Female	Male	All Rural		
56.4 min.	55.2 min.	55.8 min.	157.2 min.	126 min.	141.6 min.		

When we look at the rural group we see that the average time taken for any rural female is 157.2 minutes or approximately 2 hours and 37 minutes. For the rural male it is 126 minutes or 2 hours and 6 minutes. The average time taken by any average rural person is 141.6 minutes or approximately 2 hours and 21 minutes. The difference between the rural



In the last 6 months

Don't remember

Missing

Total

Between 6 and 12 months

male female is 31.2 minutes. The difference between the urban average and rural average is about 85.8 minutes or approximately 1 hour and 25 minutes. Looking at the low distribution of health facilities in the rural areas the average time looks to be quite encouraging.

Closely linked to the previous issue of access to health care is the next question of interest. We found that 34.3% of the respondents that used any health care always received the care as soon as they wanted, 22.1% usually got it as soon as they wanted, 4.1% sometimes got it and 0.9% never got it as soon as they wanted. This approach has always been a tricky one because, one is never able to know the difference in expectations of people in different setting and different socioeconomic groups. The fact that more rural people feel that they always received health care "always" as soon as they wanted does not mean that the access to health service in the rural areas is much more and better organised than the urban area. It may be possible that the expectations of the rural population is so less that they may not even be having any so called "legitimate" expectations. Empirical evidence has been confirming that the higher the socioeconomic status and higher the awareness, the higher is the expectation from any health systems (Murray & Chen, 1992).

Table 19: How often have people been receiving health care as soon as they wanted in the previous year

previous year	T.	r 1		1	TD + 1
	U	rban	K [*]	ural	Total
	Female	Male	Female	Male	
Respondents in the sample	660	564	2,080	1,830	5134
Always	41.8%	29.6%	35.3%	31.9%	34.3%
Usually	19.7%	18.1%	23.1%	23.0%	22.1%
Sometimes	3.3%	6.0%	3.8%	4.3%	4.1%
Never	1.2%	0.9%	0.5%	1.1%	0.9%
Missing	0.2%	0.0%	0.1%	0.2%	0.1%
Total	66.2%	54.6%	62.8%	60.4%	61.5%

Respondents that availed ambulatory care, inpatient care, home care etc., were asked to report their personal experiences regarding all the eight dimensions in one of the five categories ranging from very good to very bad.

First we will look at the perceptions of the ones that availed any outpatient health care. Here we find that most respondents have given their ratings as good, very good or moderate. There is a tendency for people to give good ratings in surveys worldwide. Hence patient satisfaction surveys and patient exit interviews usually result in high levels of satisfaction levels. Social desirability bias argues that patients may report greater satisfaction than they actually feel because they believe positive comments are more acceptable to survey administrators. Cognitive consistency theory suggests that patients are likely to report they are satisfied as a way of justifying the time and effort they themselves have invested in their treatment (DeSilva, 1999). Individuals who wish to continue service may express satisfaction considering that this would encourage the provision of health services (Owens & Batchelor,1996). Only a very few proportion of persons have rated in bad and very bad categories.



Table 20a: Percent distribution of ratings of Out-patient service in the 8 dimensions

Dimensions	Very Good	Good	Moderate	Bad	Very bad	Missing	Don't know	Total
Prompt	15.30%	73.30%	8.50%	2.10%	0.30%	0.50%	0.00%	100%
Attention								
Communication	20.80%	68.40%	7.90%	1.90%	0.70%	0.20%	0.00%	100%
Dignity	20.50%	71.70%	6.00%	1.30%	0.20%	0.20%	0.00%	100%
Choice provider	24.60%	63.70%	8.30%	1.00%	0.40%	1.90%	0.00%	100%
Social Support	NA	NA	NA	NA	NA	NA	NA	100%
Confidentiality	20.30%	71.10%	6.60%	1.20%	0.20%	0.70%	0.00%	100%
Basic amenities	20.30%	70.90%	7.10%	1.00%	0.30%	0.40%	0.00%	100%
Autonomy over	14.70%	69.00%	11.20%	3.50%	0.90%	0.60%	0.00%	100%
treatment								

The same pattern is also evident in the percent distribution of the ratings of the users of the in-patient health service. Here also we find the clubbing of all the responses under the "good" category. The highest very bad falls under the social support dimension, and is 2.3%. The dimensions are slightly negatively rated compared to the out-patient users category.

Table 20b: Percent distribution of ratings of In-patient service in the 8 dimensions

Dimensions	Very Good	Good	Moderate	Bad	Very bad	Missing	Don't know	Total
Prompt Attention	19.0%	70.5%	6.6%	3.0%	0.9%	0.0%	0.0%	100%
Communication	17.1%	77.0%	3.0%	2.8%	0.0%	0.0%	0.0%	100%
Dignity	18.7%	73.8%	4.4%	3.0%	0.0%	0.0%	0.0%	100%
Choice of provider	15.2%	75.6%	7.0%	1.6%	0.5%	0.0%	0.0%	100%
Social Support	18.3%	68.4%	6.1%	4.7%	2.3%	0.2%	0.0%	100%
Confidentiality	13.3%	73.3%	6.1%	1.4%	0.0%	1.2%	4.7%	100%
Basic amenities	16.9%	74.0%	7.3%	0.5%	1.4%	0.0%	0.0%	100%
Autonomy over	12.6%	72.4%	10.8%	3.7%	0.2%	0.2%	0.0%	100%
treatment								

Looking at the percent distribution among respondents rating of home care services, we also find a similar trend in rating. Here we see that percent constitution of prompt attention under bad category is 3.4, for communication and dignity under bad is 2% each, for autonomy over treatment is 5.4% under the same category.

Table 20c: Percent distribution of ratings of Home care service in the 8 dimensions

Dimensions	Very Good	Good	Moderate	Bad	Very bad	Missing	Total
Prompt Attention	14.1%	78.0%	3.9%	3.4%	0.0%	0.5%	100%
Communication	16.1%	76.6%	4.4%	2.0%	0.5%	0.5%	100%
Dignity	13.2%	78.5%	5.9%	2.0%	0.0%	0.5%	100%
Choice of provider	17.1%	72.7%	6.8%	1.5%	1.5%	0.5%	100%
Social Support	NA	NA	NA	NA	NA	NA	100%
Confidentiality	11.7%	78.5%	7.3%	1.5%	0.5%	0.5%	100%
Basic amenities	NA	NA	NA	NA	NA	NA	100%
Autonomy over	9.8%	78.0%	4.9%	5.4%	1.0%	1.0%	100%
treatment							



There was some attempt to find out which of the eight dimensions were rated as most important and least important by the respondents. This will give an insight as to what is valued more over the other by the community, which subsequently can be determining factor while planning and organising the health services. Of all the respondent that gave a rating of most important, we found that 53% of the respondents gave a rating of most important to prompt attention, 23% to communication, 14% to dignity, 3% to choice of provider, 2% each to social support, basic amenities and confidentiality and 1% to autonomy over treatment. It is clear and evident that the top three most important dimensions as rated by respondents are prompt attention, communication and dignity. Access to health care services is still an issue that has to be dealt with in order that people are able to get health care as soon as they need them. Here, the issue is not just physical distance, even though it is a significant one. Access to health services also refers to the psychological and behavioural barriers that people may have in not being able to access health care services.

Table 21: Percent distribution among dimensions rated by respondents as most important

Dimensions	Most important (N=5117)	Least important (N= 5105)		
Prompt Attention	53%	2%		
Communication	23%	4%		
Dignity	14%	9%		
Choice of provider	3%	22%		
Social support	2%	38%		
Basic amenities	2%	7%		
Confidentiality	2%	8%		
Autonomy over treatment	1%	9%		
Missing	0%	1%		

While looking at the percent distribution of all the least importantly rated dimension we find that social support has been rated by 38% of respondents as least important, 4% for communication and choice of provider, 9% for dignity and autonomy over treatment, 8% for confidentiality, 7% for basic amenities and 2% for prompt attention and then to communication. Here, it has again been confirmed that respondents give maximum importance to prompt attention. Choice of provider is not an issue that respondents are worried about. Autonomy over treatment is still not an issue too in a culture where people think that the doctor knows what is best for them.

As has been emphasised before one of the goals of any health system is financial. This means that any health systems should work towards moving in a direction so as to protect interests of the general population, especially the economically impoverished. If the health system has been structured in such a manner that it has a tendency to exclude a chunk of the population, then it is not serving its purpose. If someone has to pay a catastrophic price to receive any health care then also the health system is not serving its purpose. In order to know whether the health system is actually fulfilling its financial goal a question was asked to all respondents, that had a health need, if they were ever refused health care because they could not afford it we found that 15.6% said they were actually refused health care because they could not afford it. Most of them from the rural setting. 17.9% of the rural people were refused when they sought health care, while 8% of the urban people were refused while seeking health care. Table 22 has the details.



Table 22: Were refused or did not seek health care because they could not afford it

Setting		Urban		Rural			Total
Gender	Female	Male	Total	Female	Male	Total	
	660	564	1224	2080	1830	3910	5134
Sought health care but refused	8.9%	6.9%	8.0%	18.8%	16.9%	17.9%	15.6%
Said "no" to the question	89.1%	91.7%	90.3%	80.4%	82.1%	81.2%	83.4%
Missing	2.0%	1.4%	1.7%	0.8%	1.0%	0.9%	1.1%
Did not seek health care because could not afford it	26.7%	14.7%	21.2%	43.1%	38.8%	41.1%	36.3%
Said "no" to the question	71.1%	83.0%	76.6%	56.3%	60.3%	58.1%	62.5%
Missing	2.3%	2.3%	2.3%	0.7%	0.9%	0.8%	1.1%

We also wanted to know how many persons actually did not seek any health care in spite of having a health need because they could not afford it, we found 36.3% of the respondents had, in the last 12 months, not sought any health care because they could not afford it. 41.1% of our rural sample and 21.2% of our urban sample did not seek any health care because they could not afford it. This is a highly alarming number. But one should be cautious here that these persons have actually not sought any health care because they thought that they could not afford it. In any case if persons have such perceptions about health systems, it is also some food for thought for health planners. No matter how good a health system is, if it cannot gain the trust and faith of its users it is not worth it.

In both these findings one finds a big difference between the rural and urban population in terms of their health seeking behaviour. The urban areas have a lot of public hospitals that are well equipped to deal with any emergency situation, while the public health care institutions in the rural or semi-rural areas are not well equipped. Hence, rural people tend to rely on the private health care institutions for any health need. Our surveyors collected a lot of qualitative information regarding the health seeking behaviour which was later compiled through a focus group discussion. The respondents while answering this question mentioned that they could not rely the primary health centres for any serious health need and preferred to go to a private clinic or provider who would dispose them quickly with pills or injections. This would enable the people to get back to their work soon.

