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Social audit of governance and delivery of public services: Khanewal district – preventive child health

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Khanewal District 2005

Preventive child health

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Contents

List of tables ii
List of figures iii
Acknowledgements iv
Summary v
Methods v
Findings vi
Introduction 1
The social audit in focus districts 1
Operationalising the social audit in focus districts 2
Focus district national core group 4
Methods 5
The topic for the social audit cycle 5
Data collection instruments 6
Sample and sampling 7
Field teams 8
Data collection 8
Data entry and analysis 9
Findings 11
The information base 11
Childhood Diarrhoea 12
Frequency of childhood diarrhoea 12
Variables potentially related to childhood diarrhoea 12
Analysis of risk of diarrhoea in children 15
Treatment of diarrhoea in children 17
Experience of treatment for diarrhoea 19
Childhood respiratory infections 21
Frequency of childhood respiratory infections 21
Variables potentially related to ARI 21
Analysis of risk of childhood ARI 23
Information from the lady health worker 24
Treatment of ARI 24
Childhood measles 27
Frequency of childhood measles 27
Analysis of risk of measles 27
Payment for cases of measles 28
Childhood immunisations 29
Immunisation status of the children 29
Why children are not immunised 30
Mothers' knowledge and perceptions about immunisations 31
Decisions about immunisation for children 33
Measles immunisation 34
Frequency of immunisation 34
Analysis of receiving measles vaccine 34
Lady health workers 37
Public satisfaction with basic services 40
Commentary 47
Annexes 50

List of tables

1. The household sample by tehsil 11
2. Household features by tehsil 11
3. Children in the survey by tehsil 11
4. % households using different sources of drinking water 12
5. % households with different conditions for drinking water containers 12
6. % households using and having latrines 13
7. % households observed with different hygienic conditions in and around the house 14
8. Frequency of LHW visits to visited households 14
9. Variables potentially associated with the risk of diarrhoea in children 15
10. Model of effects of variables on risk of diarrhoea in children whose mothers had some education 16
11. Potential gains in diarrhoea prevention among children whose mothers have some education 16
12. % children taken to different types of facilities for treatment of diarrhoea in the past 12 months 18
13. Why mothers were satisfied with the treatment from the facility (% mothers) 20
14. Why mothers were dissatisfied with the treatment from the facility (% mothers) 20
15. % that paid, mean and median amounts paid for travel for treatment of diarrhoea 20
16. % that paid, mean and median amounts paid for diarrhoea treatment at the facility 20
17. % that paid, mean and median amounts paid for diarrhoea medicines or investigations outside facility 20
18. % households with different stove types for cooking 21
19. % households with different heating systems% households with different heating systems 22
20. Variables potentially associated with the risk of ARI in children 23
21. Potential gains in ARI prevention 23
22. % children taken to different types of facilities for treatment of ARI in the past 12 months 24
23. % that paid, mean and median amounts paid for travel for treatment of ARI 26
24. % that paid, mean and median amounts paid for ARI treatment at the facility 26
25. % that paid, mean and median amounts paid for ARI medicines/investigations outside the facility 26
26. Variables potentially associated with the risk of measles in children 27
27. Model of effects of variables on the chance of *not* having measles 28
28. Potential gains in measles prevention in children 10-59 months old 28
29. % children 12-23 months immunised% children 12-23 months immunised 29
30. Reasons why children (12-59 months) are not immunised 30
31. Mothers' sources of information about immunisation for children 31
32. Why mothers felt immunisation was not worthwhile 32
33. Where mothers had heard about adverse effects of immunisations 32
34. Mother's recall about advice on immunisations given by LHWs 33
35. Mother's involvement in decisions about immunisation for the child (% children) 33
36. Variables potentially associated with the risk of measles in children 34
37. Model of effects of variables on the chance of having measles vaccine 34
38. Potential gains in increasing measles immunisation 36
39. Where LHWs heard about adverse effects of immunisation 37
40. Why children are not always immunised: LHW views 38
41. Suggestions of LHWs to ensure all children are immunised 38
42. Advice reportedly given by LHWs about diarrhoea prevention 38
43. Advice reportedly given by LHWs about diarrhoea treatment 38
44. Advice reportedly given by LHWs about ARI treatment 39
45. % households reporting access to roads and public transport 40
46. % households reporting access to garbage, sewerage, and water services 42
47. % households reporting access to agricultural, education and health services 43
48. % households reporting access to gas and electricity services 45

List of figures

1. Sample sites for Khanewal social audit 2005 (map) 7
2. % of “very vulnerable” households (map) 11
3. % of children with diarrhoea in the last 2 weeks 12
4. % of children with diarrhoea in the last 2 weeks (map) 12
5. % households with covered, clean, raised drinking water container (map) 13
6. % households with a formal latrine (map) 13
7. % households with excreta observed inside or at the doorstep (map) 14
8. % of mothers who could correctly cite a cause of diarrhoea in children (map) 15
9. % children under 60 months old given more fluids during last episode of diarrhoea (map) 17
10. % children under 60 months old given anti-diarrhoea medicine during last episode of diarrhoea (map) 17
11. % children under 60 months old taken for treatment during their last episode of diarrhoea (map) 18
12. % of children provided ORS and availability of other medicines from health facilities or practitioners 19
13. % of mothers of children with diarrhoea who thought they got a full explanation of their child's illness 19
14. % of children under 60 months old with ARI in the last 2 weeks 21
15. % of children under 60 months old with ARI in the last 2 weeks (map) 21
16. % children with ARI taken to different health care providers 24
17. % children under 60 months old taken anywhere for treatment in last episode of ARI (map) 24
18. % mothers/caregivers provided with a full explanation of their child's illness, for children with ARI 25
19. % of parents of children with ARI provided with all medicines prescribed 25
20. % children aged 10-59 months who have had measles, excluding cases at under 10 months old 27
21. % children aged 10-59 months who have had measles, excluding cases at under 10 months old (map) 27
22. % children 21-23 months who had BCG (map) 29
23. % children 12-23 months who had full course DPT (map) 29
24. % children 12-23 months who had measles vaccine (map) 29
25. % children (12-23 months) who have received measles vaccine 34
26. % households satisfied with roads 40
27. % households satisfied with roads (map) 40
28. % households satisfied with public transport 41
29. % households satisfied with public transport (map) 41
30. % households satisfied with garbage disposal 41
31. % households satisfied with garbage disposal (map) 41
32. % households satisfied with sewerage services 42
33. % households satisfied with sewerage services (map) 42
34. % households satisfied with government water supply 42
35. % households satisfied with government water supply (map) 43
36. % households satisfied with agriculture services 43
37. % households satisfied with agriculture services (map) 43
38. % households satisfied with government education services 44
39. % households satisfied with government education services (map) 44
40. % households satisfied with govt health services 44
41. % households satisfied with govt health services (map) 44
42. % households satisfied with gas supply 45
43. % households satisfied with gas supply (map) 45
44. % households satisfied with electricity supply 46
45. % households satisfied with electricity supply (map) 46

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Summary

Commissioned by the National Reconstruction Bureau (NRB), the CIET social audit tracks the public views, use and experience of public services under devolved local government and provides a mechanism for including citizens' views and suggestions in planning and policy making, particularly at local level.

The first and second national social audits took place in 2001/2 and 2004/5. During the first half of 2006 findings from the second national social audit will be discussed widely with the public, civil society, service providers, planners and policy makers. The social audit programme continues until 2009, with alternating years of data collection and dissemination and use of findings.

To help involve citizens in local planning and to support evidence-based planning, CIET is implementing a district social audit in five focus districts. Work in Lasbela began in 2003, and Khairpur, Haripur, Sialkot, and Khanewal joined in late 2004. In these districts the social audit aims to help governments to plan and implement services tailored to the needs of their people. A national core group supports the social audit in the focus districts.

Methods

After discussions in all the focus districts, the NCG agreed the topic of 'public and preventive health' as the main area for the first district social audit. Working with sub technical groups in each district, we designed the instruments for the cycle, including a household questionnaire, a community profile record, an institutional review of government health facilities, an interview with lady health workers (LHWs), and a feedback focus group guide.

In each district we drew a stratified random cluster sample of communities to represent the tehsils (talukas) of the district. In Khanewal the sample comprised 19 rural and 4 urban communities across the tehsils.

Trained field teams (mainly women) collected household information in April 2005 and the feedback focus groups in July 2005.

Double data entry with validation ensured a clean dataset. We categorized household vulnerability on the

basis of roof construction, room occupancy, and occupation of the main breadwinner. Analysis produced data on key indicators across the district, weighted to reflect any uneven sample distribution, and examined the potential effects of interventions to improve outcomes.

Findings

Information base

The survey covered 2400 households (representing 17316 people). The household sample in each tehsil is shown in Table s1. Some 48% of the households were 'vulnerable' and 15% were 'very vulnerable'. Table s2 shows household features by tehsil.

Table s1. The household sample by tehsil

Tehsil	No. households	Total people
Jahania	516	3760
Kabirwala	734	5060
Khanewal	410	3031
Mian Channu	740	5465

Table s2. Household features by tehsil

Feature	Very vulnerable	Vulnerable	Educated Head	Male head
Jahania	13	45	51	95
Kabirwala	18	54	53	95
Khanewal	16	49	44	94
Mian Channu	11	41	56	93
District Khanewal	15	48	51	94
Punjab	12	47	54	92
Pakistan	13	47	53	93

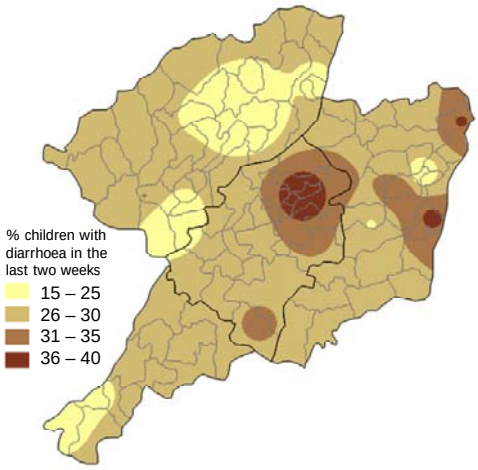

Figure s1 % children under 60 months with diarrhoea in the last two weeks

In the 2400 households we interviewed 2497 mothers or caregivers. Only 27% had any formal education. The 2497 mothers provided information about 3586 children less than 60 months old.

We also interviewed 29 LHWs covering the sample communities.

Childhood diarrhoea and related issues

Among children aged less than 60 months, 29% had suffered diarrhoea during the last two weeks and 75% had suffered diarrhoea in the past 12 months. The proportion of children with diarrhoea during the last two weeks varied across the district (Figure s1).

Some household features and practices are potentially related to the risk of diarrhoea in children.

Drinking water
Nearly all (97%) households in Khanewal rely on ground water as their main source of drinking water with very few using either piped water or surface water. Nearly all households (99%) have a water source defined as protected.

Of the drinking water containers inspected, 97% were covered, 85% were clean, 59% were raised, and 53% were covered, clean *and* raised.

Latrines and household hygiene
Some 61% of households used a latrine and 58% had some formal type of latrine (Figure s2). Most

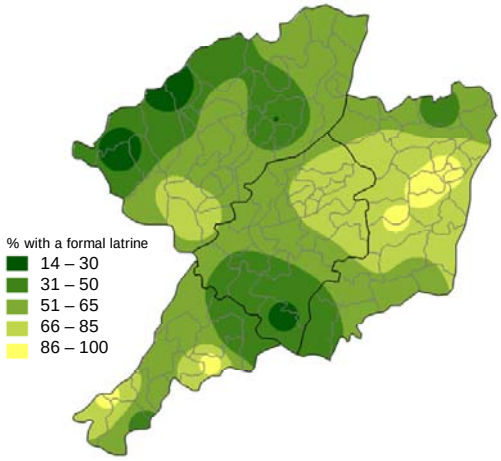

Figure s2 % households with a formal latrine

households without a latrine (89%) said this was because they could not afford one.

Most community focus groups believed that having a latrine in the household could help prevent diarrhoea in children but they pointed out it was important to keep it clean. They felt households would need financial and technical support to help them install latrines.

The field teams observed garbage inside or at the doorstep in 77% of households, sewage water in 43%, and excreta in 58%.

Information and knowledge about diarrhoea

Some 60% of mothers said an LHW visited their household, but few of these mothers (6%) recalled the LHW telling them about preventing diarrhoea in children. About two thirds of mothers (67%) could correctly identify a cause of childhood diarrhoea.

Analysis of risk of diarrhoea

The pattern of variables related to the risk of diarrhoea was different between children whose mothers had some education and those whose mothers had no education.

If the mother had some education, then younger children, those whose mothers did not have knowledge of diarrhoea causes, and those without a latrine in the household were more likely to have diarrhoea. In this group of children, those with a latrine had only half the risk of diarrhoea. Across all children, if they all had latrines, 19 per thousand could be prevented from having diarrhoea.

Treatment of diarrhoea

Only 13% of mothers visited by an LHW recalled she told them about treating diarrhoea in children. Most (75%) mothers said they would give a child more fluids during an episode of diarrhoea and 60% said they would give the child either the same or more food. When actually treating an episode of diarrhoea, mothers gave 69% of the children more fluids and 63% with either the same or more food.

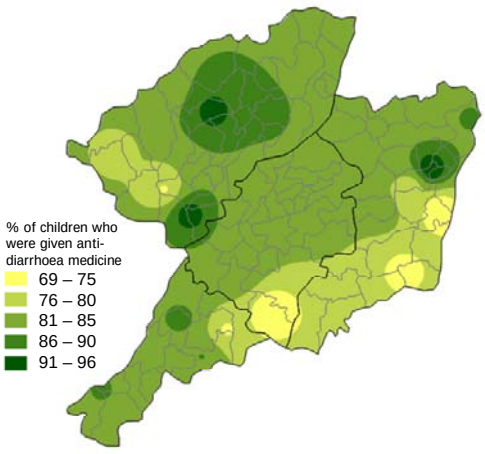

Figure s3 % children under 5 years old given anti-diarrhoea medicine during last episode of diarrhoea

In most cases (82%) the mother gave the child medicine to stop the diarrhoea (Figure s3). This is generally *not* good practice and these anti-diarrhoeal medications can be dangerous for young children.

A quarter (24%) of children with diarrhoea were not taken anywhere for treatment. Half (51%) were taken to an unqualified practitioner, 21% to a private facility or practitioner, only 4% to a government facility, and less than 1% to an NGO service. Government facilities more often gave children ORS (62%) than private facilities (56%) or unqualified practitioners (46%).

More parents who used a private practitioner felt they were given a full explanation about the child's condition (63%), than parents who used a government facility (50%) or an unqualified practitioner (46%). For all service providers, more than 9 out of every 10 parents were satisfied with the behaviour of the health worker.

Most parents paid for travel to government or private practitioners but not to unqualified practitioners. The average payments for treatment were lowest in government facilities. Three quarters of parents paid for medicines or investigations outside the facility for government facilities (73%), over half for private facilities (59%), and 19% for unqualified practitioners.

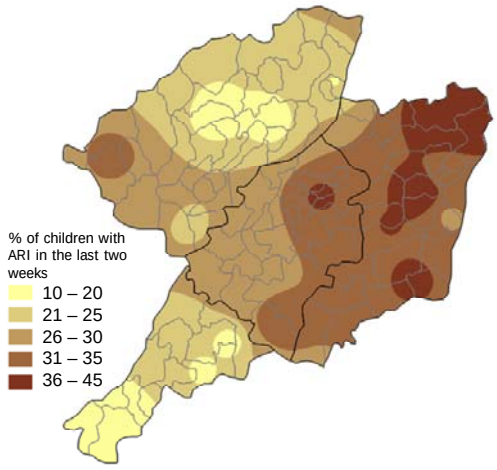

Figure s4 % children under 5 years old with ARI in the last two weeks

Childhood respiratory infections

Among children under 60 months old, 29% had suffered an acute respiratory infection (ARI) during the last two weeks and 73% during the past year (Figure s4).

Some household features and practices are potentially related to the risk of ARI in children.

Cooking and heating
Some 60% of households had their cooking area separate from the main living area, and 66% had their cooking area separate from the sleeping area. Most cooking was on wood stoves and only 10% used non-smoky cooking fuels. A third of households (36%) had some type of heating system, mostly wood stoves.

Smoking and ventilation
Half (54%) of the households had at least one member who smoked inside the household. Most (83%) households had some form of ventilation arrangement.

Analysis of risk of ARI
Most of the household features we studied were not related to the risk of ARI. Children with educated mothers were slightly more likely to be reported as having ARI, perhaps because of better awareness, and

children from households with a heating system were less likely to have ARI, especially in Jahania tehsil. The analysis model indicates that 40 per thousand children could potentially be protected from ARI if all households had a heating system.

Treatment of ARI
Of mothers visited by an LHW, very few recalled being told how to recognize (1%) or treat (2%) ARI.

Of children with ARI in the last 12 months, 15% were not taken anywhere for treatment, 60% were taken to an unqualified practitioner, 23% to a private qualified practitioner, only 4% to a government facility, and 1% to an NGO service.

Private practitioners provided a full explanation for 61% of children, government practitioners for 44%, and unqualified practitioners for 48%. All the medicines were provided in the facility for 85% of visits to unqualified practitioners, 51% to private facilities, and 44% to government facilities.

Most families paid for travel to government or private facilities but not for travel to unqualified practitioners. Payments for treatment in government facilities were less than those for private or unqualified practitioners. But half of those visiting government facilities had to pay for medicines outside the facility.

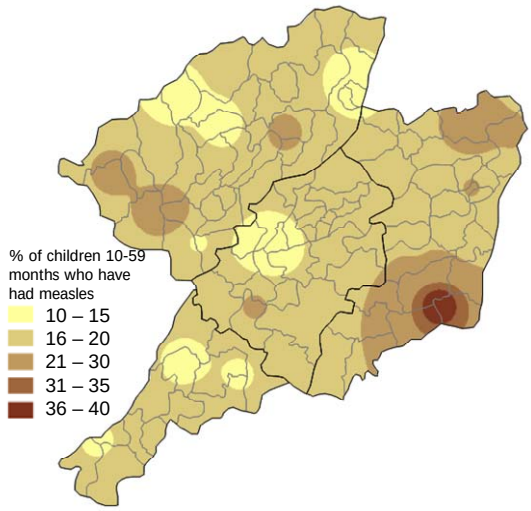

Figure s5 % children 10-59 months who have had measles

Childhood measles

The description of measles frequency is among children 10-59 months old and excludes cases in children less than 10 months old. In these children, 19% were reported to have had measles (Figure s5).

Analysis of risk of measles
Younger children were less likely to have had measles than older children. Children who had not been immunised against measles had 1.7 times the risk of having measles compared with children who had been immunized. The analysis indicated that if all children were immunized, this could potentially protect 24 per thousand children from having measles.

Costs of measles
Of those children aged 10-59 months who had measles in the last 24 months, 63% of their parents paid

something for treatment. Among those who paid, the mean amount was Rs 385 (median Rs 200).

Childhood immunisations

Among children aged 12-23 months, 81% had received BCG vaccine, 67% had received a full course of DPT injections, and 65% had received measles vaccine (Figure s6). Almost all children under 60 months had received polio drops at least once during the last year, and most of them had received drops many times.

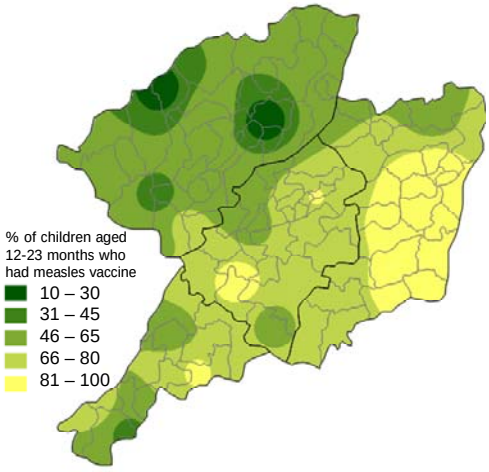

Figure s6 % children 12-23 months who had measles vaccine

Knowledge and perceptions about immunisation
Nearly all mothers had heard something about immunisations, but sometimes no more than information about where to go to get the immunisation. Some 76% of mothers were able to mention at least one illness preventable by immunisation. Almost all (96%) thought it was worthwhile to immunise children. Only 3% had heard of any adverse effect of immunisation. Among mothers visited by an LHW, 22% recalled being told something about immunisations. Most (84%) of mothers had discussed immunisation in the family. For 44% of the children mothers alone had made the decision about immunisation, for 33% the mother and father decided together, and for 23% mothers were not involved in the decision.

Analysis of receiving measles vaccine
Children were more likely to be immunised if: they were from urban communities, they were from less vulnerable households, they were older, their mother had some education, their mother knew of some vaccine preventable diseases, their mother had been told by the LHW about immunisations, their family had discussed immunisations, and if their community was visited by a vaccination team.

Public satisfaction with basic services

Isolated satisfaction ratings must be interpreted with caution as they may be influenced by many factors, but they nevertheless offer a feedback to district governments about a range of services provided by district and tehsil governments.

Roads
Some 56% of households were satisfied with the roads and 91% said they had access to roads.

Public transport
Some 77% of households were satisfied with public transport and 98% said they had access to it.

Government garbage disposal
Only 4% of households were satisfied with garbage disposal and 10% said they had access to a service..

Government sewerage system
Only 31% of households were satisfied with garbage disposal and 63% said they had access to a service.

Government water supply
Only 6% of households were satisfied with government water supply and 9% said they had access to a supply.

Agriculture services
Some 51% of households were satisfied with agriculture services and 73% said they had access to a service.

Government education services
Some 74% of households were satisfied with education services and 98% said they had access to a service.

Government health services
Some 42% of households were satisfied with health services and 92% said they had access to a service.

Gas supply
Only 10% of households were satisfied with gas supply and 11% said they had access to a supply.

Electricity supply
Some 77% of households were satisfied with the electricity supply and 94% said they had access to a supply.

Commentary

This report presents the main findings of the social audit in Khanewal. It will hopefully be a useful reference. But the main work of disseminating the findings and making use of them to support evidence-based planning is only just beginning. Over the coming months the social audit findings will be presented and discussed in many settings within the district, both within and outside government.

Some findings worth highlighting for further discussion include:

- the quite high rate of childhood diarrhoea and the protective effect of latrines only if the mother had some education
- the high use of anti-diarrhoea medicines in children
- the low use of government health services and high use of unqualified practitioners for treatment of both diarrhoea and ARI
- the local evidence of the protective effect of measles vaccine on the risk of measles
- the need to increase the rate of childhood immunisations and the evidence for possible interventions to do this
- the contrast between LHW reports of giving information to most mothers and few mothers recalling being given information
- the information about public satisfaction with services and areas where Khanewal is above and below the overall figures for Punjab

Introduction

Commissioned by the National Reconstruction Bureau (NRB), the CIET social audit tracks the public views, use and experience of public services under devolved local government and provides a mechanism for including citizens' views and suggestions in planning and policy making, particularly at local level.

The aims of the five year social audit programme are:

- To provide citizen's views and experience of devolution
- To examine delivery of public services to citizens and track changes over time
- To provide a means of input for citizens into district level planning
- To support evidence-based planning, especially at district level

CIET conducted the baseline national social audit in 2001/2 and the second cycle in 2004/5. The second cycle allowed an assessment of changes since the baseline at the beginning of devolution, and identified factors related to positive outcomes. During the coming months the findings of the second national social audit will be shared and discussed widely with the public, civil society, service providers, planners and policy makers. The third national social audit will begin in the second half of 2006. The social audit programme is set to continue until 2009, with alternating years of data collection and dissemination and use of the findings.

The national social audit collects information from a representative sample of some 54,000 households in communities in all districts. The social audit goes beyond information gathering, analysis, and reporting. It goes on to facilitate discussion with communities, formulation of solutions and strategies, validation with other institutions such as health and education facilities, and discussion with local government authorities.

The social audit in focus districts

In order to achieve the second two aims of the social audit (above) it is necessary to work in more detail within districts, and CIET is implementing a district social audit in five focus districts. Experience in these districts will facilitate the roll-out of district level social audit to additional districts over time. Work in the first

focus district, Lasbela, began in 2003, and four further districts – Khairpur, Haripur, Sialkot, and Khanewal – joined towards the end of 2004.

In the focus districts the social audit aims to help governments to plan and implement services tailored to the needs of their local populations. It is a means of giving form to the intention of the Local Government Order 2001 to empower citizens to participate in an informed way in decisions that affect their lives, and encourage them to engage in local democratic processes. A key element of the district social audit is the close involvement of government officers, elected representatives and civil society groups, building their skills over time institutionalising the process so that it can be sustained beyond the time of the project. In summary, the aims of the district social audit are:

- To assist evidence-based planning at district, tehsil and union levels
- To provide a means of input for citizens into district level planning
- To build capacities of district officers and elected representatives for evidence-based planning
- To produce a sustainable process (over a five year programme)

The five focus districts all joined the scheme based primarily on the interest and enthusiasm of the nazims and other members of their district governments, beginning at the time of disseminating the findings of the baseline (2001/2) social audit in regional meetings. Provincial governments, especially through the provincial departments of local government and rural development, endorsed the choice of focus districts in their respective provinces.

Operationalising the social audit in focus districts

In each of the five districts, CIET and the district government have made similar arrangements for the social audit.

An initial *district orientation meeting(s)*, attended by key stakeholders inside and outside government (at district and tehsil levels), introduced the concepts of the social audit and the objectives of the district social audit scheme, and provided an opportunity for questions and

discussion about the proposed processes in the district. Participants identified the issues they considered to be the first priorities to be covered by the district social audit, bearing in mind that the priority issue should be one where it could be possible for the district to act to change the situation. Participants also agreed to form a district social audit steering group, identified a suitable person to be the social audit focal point on behalf of the district government, agreed arrangements for providing office space for the CIET social audit district coordinator, and agreed arrangements for tehsil level orientation meetings. In Khanewal district the initial district orientation meeting took place on 28 October 2004.

A series of *tehsil orientation meetings* across the district introduced participants to the social audit and heard their priority topics for the district social audit. The office of the EDO community development facilitated these tehsil meetings. Participants included tehsil level government officers and elected representatives, as well as representatives from union councils, from civil society, and from the media.

The *district steering group* discusses policy issues and makes decisions about the social audit at district level. It coordinates support to the CIET team for social audit activities. It also gives inputs into the design of the social audit cycles. It is the forum for discussing recommended actions emerging from the social audit evidence and helping to incorporate these into district planning.

In general, the steering group comprises:

- District Nazim & Naib Nazim
- From district administration:
    - DCO
    - Finance and planning department
    - Community development department
    - Key line departments such as health, education, public health engineering, agriculture, livestock
- Representatives from the district council
- Representatives from tehsil councils and administrations
- Civil society representatives such as NGOs/CBOs/CCBs, academic institutions, media, or other professional bodies

Annex 1 gives the list of members of the social audit district steering group in Khanewal district.

Each district government nominated a *sub-technical group* to work in detail with the CIET team on selection of the household sample and design of the instruments for the social audit. The groups generally included representation from relevant line departments including finance and planning, community development, health, public health engineering, members from the district council, selected TMOs, and relevant civil society representatives. Annex 2 lists the members of the sub-technical group in Khanewal district.

The CIET district coordinator collected *basic information about the district* to facilitate sampling, mapping and communication. This included:

- A list of all important contacts within the district and all tehsils with full contact details
- Population data about district tehsil and union councils with urban and rural distribution.
- A list of union councils in each tehsil, marked as urban or rural
- A recent map of the district with tehsil and union boundaries

Focus district national core group

A national core group supports the social audit in the focus districts. The group includes representation from all the focus districts, from provincial local government departments, and from NRB, with CIET providing the logistic and secretarial support. The terms of reference for the national core group are shown in Annex 3. The national core group shares experiences of the district social audit between the focus districts, identifying what has worked especially well, so that a tool-box for district social audit in other districts can be developed.

The inaugural meeting of the group took place on 3 December 2004 in Islamabad, with a follow-up meeting on 11 June 2005 in Lasbela. In these meetings the group agreed their terms of reference, approved a memorandum of understanding between CIET and focus districts (subsequently sent to provincial governments for endorsement), agreed a common topic for the social audit in all the focus districts, received preliminary findings from the social audit and discussed plans for their dissemination.

Methods

A social audit cycle

- Clarify the strategic focus
- Design instruments, pilot test
- Collect information from households on use, perceptions and their experience of public services
- Link this with information from key informants and relevant services
- Analyse the findings in a way that points to action
- Take findings back to the communities for their views about how to improve the situation
- Bring evidence and community voice into discussions between service providers, planners and community representatives to plan and implement changes

Annex 4 gives a general description of the CIET social audit methods. The concept of the social audit is simple: collect information about a key problem from the people concerned and from service providers. Then use this information as a basis for involving the public and service providers in making changes to improve the services. The key steps include: collect information from women and men in households in representative communities about their knowledge, use, perceptions and experience of the problem and their use of relevant services; link this with information from the services and service providers; analyse the findings in a way that points to what actions might improve matters; take the findings back to the communities for their views about what could improve the situation; bring the findings and suggestions to discussions between service providers, planners and community representatives to plan and implement changes. The loop is closed when a repeat fact-finding exercise assesses the changes and their effects.

The topic for the social audit cycle

In each district, a short list of topics emerged from the consultative process in district and tehsil level meetings including government and civil society (see Introduction). Four topics came up in all the focus districts, in slightly differing orders of priority.

1. Health (including public and preventive health issues such as hygiene, sanitation and drinking water)
2. Education (with emphasis on girls' education, special and technical education)
3. Irrigation (*islahe aabpashi*)
4. Roads and communication

These district priorities were discussed in the first national core group meeting. The group agreed on "Public and preventive health" as the topic for the first cycle, noting that others on the shortlist could be topics of subsequent social audit cycles. In the case of Lasbela, some aspects of public health, water supply and sanitation had already been covered in their first social audit cycles, so they extended the focus more onto aspects of childhood immunisation.

Data collection instruments

CIET worked with district sub-technical groups to design the instruments for social audit, with an emphasis on collecting information that could be useful for planning service improvements. This exercise was also an opportunity for skills transfer to the district teams. Sharing of expertise and suggestions between districts ensured that a common set of instruments emerged with inputs from all districts, suitable for collecting information in the diverse circumstances of the five focus districts.

The social audit instruments are standards-based, drawing on CIET experience as well as other relevant sources. In this case, we used in particular the experience of the first social audit in Lasbela as a guide for relevant sections of the instruments.

The instruments for the social audit cycle included: a household questionnaire, a community profile, an institutional review of health facilities, a key informant interview for lady health workers, and a feedback focus group guide.

The household questionnaire comprised two sections:

- general household information from a household respondent, including demographics of the household, household hygiene practices and water supply, and satisfaction and perceived access to a range of public services
- information from mothers of under five years old children, concerning their education, knowledge, attitudes and practices, as well as illnesses in the children and their management, and immunisation of the children

The community profile was completed by means of discussion with a knowledgeable person in the community and observations by the field workers. It covered garbage disposal, the sewerage system, community drinking water sources, type and location of health facilities, and information about any community organizations.

The institutional review of government health facilities serving communities collected information about records and supplies, and, by observation, the presence and functioning of facilities and equipment. It included

an interview with the vaccinator or other person responsible for the facility vaccination services.

A *key informant interview* collected information from lady health workers in those sites where they worked, including their education and training, visits to the households, any problems they faced, and their relevant knowledge and practice.

Feedback focus group guides were developed once the basic findings from the households were available. They presented tehsil level key findings and invited discussion and suggestions for solutions. The guide covered the use of latrines and childhood diarrhoea, management of diarrhoea, the household environment and respiratory infection in children, and how to encourage and support parents to vaccinate children.

Sample and sampling

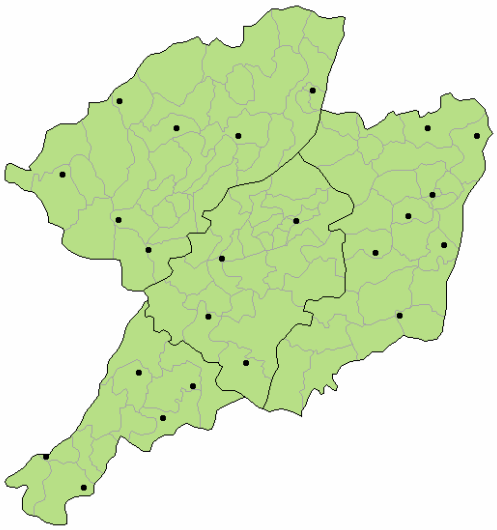

Figure 1. Sample sites for Khanewal social audit 2005 (map)

The CIET team and the sub-technical group in each district selected a stratified random cluster sample of communities to give representation of the situation in the different tehsils or talukas. First union councils were randomly selected from each tehsil, reflecting urban/rural spread and with the number according to the population in each tehsil. We included a minimum of four union councils per tehsil. The official list of union councils provided by the district government was used as the sampling frame for the selection of union councils. From each union council we randomly selected one community (village or mohalla) from the list of communities in the union.

Khanewal district consists of four tehsils and has 100 union councils – 17 urban and 83 rural. The sample (Figure 1) comprised the following urban and rural sites from each tehsil:

	Urban	Rural
Khanewal	1	3
Kabirwala	1	6
Mian Channu	1	6
Jahania	1	4
Total	4	19

In each selected community, the sample included a group of 100 contiguous households with children under five years, spreading out from a random starting

point. There was no sampling within the site, all the households were included.

Field teams

Training of field teams

The field teams comprised district residents, with a majority of women since the main household interviews were with women. In the different focus districts, team members included members of NGOs, senior university students, recent graduates, and councillors.

Teams for the household survey and key informant interviews attended a three-day training, including classroom sessions and field practice. Each field team comprised eight female interviewers, one female quality control associate and one male logistic control associate.

Approaching a household

The field teams trained to conduct the community focus group discussions each comprised two men and two women. More than half of them had participated in the household data collection. Their training lasted three days, including classroom and field practice.

Data collection

The field teams undertook data collection for the 23 sites in the sample of Khanewal district in April 2005.

A household interview

Generally, each team completed the household survey in one community in one day. In come cases a site could not be completed in a single day due to difficult terrain or weather conditions. The field teams took with them a letter from DCO, giving official status to the work. On entering each community, the team logistic control associate made contact with community leaders to explain the purpose of the survey and to seek their support for the field work in the community.

After preliminary analysis of the household findings, the teams returned to the same communities and conducted focus group discussions. The focus group discussions in Khanewal district took place in July 2005.

Data entry and analysis

The field supervisers checked the registers and sent them to the CIET data management unit (DMU) in Karachi. Data entry by trained operators used the public domain software package Epi Info. Double data entry with validation reduced key stroke errors.

After validation further cleaning of the dataset looked for logical errors, out of range responses and duplications. The cleaning was completed by checking back to the original data registers as necessary.

Analysis used CIETmap software. For questions that had multiple responses, we used SPSS software to generate frequencies. Analysis followed and elaborated the analysis plan outlined during the design phase, which identified key outcomes of interest in relation to preventive child health, and factors potentially related to these outcomes. Initial analysis generated frequencies of all main indicators. The values for all the main indicators at district and tehsil level are shown in the tables in Annex 5.

Although the sample size in each tehsil reflected the relative population in that tehsil, this was not exact. Therefore, to take into account under- and over-sampling between tehsils, we calculated *weights* and applied these when making district level estimates. All the figures shown in this report are weighted, unless stated otherwise.

Further analysis examined the associations between outcomes and related risk and resilience factors, first in a univariate analysis and then in a multivariate model to examine the effects of relevant variables simultaneously. In this analysis, we included factors measured in instruments other than the household questionnaire, linked to the household and child data by means of linking code numbers. For example, this *meso-analysis* allowed us to examine the relationship between the distance of the nearest government health facility from the community and vaccination in children, taking into account the effects of other variables related to vaccination.

To investigate the relationship between household economic status and important outcomes, we defined a composite variable for household vulnerability, based

on household roof construction, degree of overcrowding, and occupation of the main breadwinner. If all three factors were adverse, we defined the household as very vulnerable, while if two out of three were adverse, we defined the household as vulnerable.

In analysing the reports of the focus group discussions, we identified certain themes mentioned by groups and coded the reports according to whether the theme was present or not. We entered this into the computer to allow us to compare it with household findings. We also used the reports to provide a qualitative understanding of some of the quantitative findings, including extracting quotes of people describing the situation in their own words.

Findings

The information base

Box: Household information base

- 2400 households
- 17316 people
- 1846 boys aged less than 60 months
- 1740 girls aged less than 60 months

Households

The survey covered 2400 households (representing 17316 people) in 23 representative communities (Box). The household sample by tehsil is shown in Table 1.

Table 1. The household sample by tehsil

Tehsil	No. households	Total people
Jahania	516	3760
Kabirwala	734	5060
Khanewal	410	3031
Mian Channu	740	5465

The general household respondent was a woman in 88% (2119/2398) of households. Almost all (94% 2266/2400) household heads were male. About half (51%; 1241/2397) of them had some formal education.

Some 48% (1112/2360) of the households were 'vulnerable' and 15% (338/2360) were 'very vulnerable'. Table 2 shows household features by tehsil. The proportions of vulnerable and very vulnerable households and of household heads with some education in Khanewal are similar to those across Punjab and in Pakistan overall. The map in Figure 2 shows household vulnerability across the district.

Table 2. Household features by tehsil

Feature	Very vulnerable	Vulnerable	Educated Head	Male head
Jahania	13	45	51	95
Kabirwala	18	54	53	95
Khanewal	16	49	44	94
Mian Channu	11	41	56	93
District Khanewal	15	48	51	94
Punjab	12	47	54	92
Pakistan	13	47	53	93

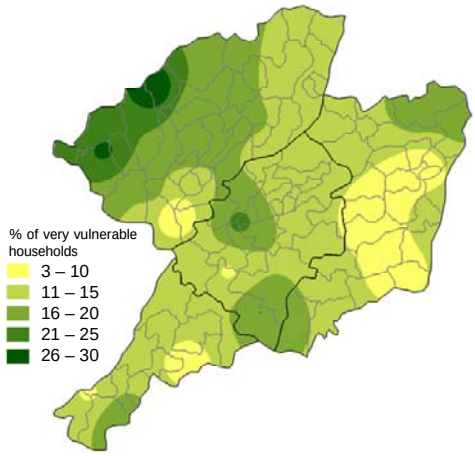

Figure 2 % of "very vulnerable" households (map)

Mothers/caregivers

In the 2400 households we interviewed 2497 mothers or caregivers. Most of them were the mothers of the children being inquired after (91%; (2275/2497). Only 27% (706/2494) had any formal education.

Children

The 2497 mothers provided information about 3586 children below 60 months old. Just over half (52%; 1846/3586) were male. Table 3 shows the number of children in each tehsil by age group.

Table 3 Children in the survey by tehsil

Feature	Total children	Children <60 months	Children 12-23 months
Jahania	942	803	136
Kabirwala	1280	1078	203
Khanewal	729	615	114
Mian Channu	1300	1090	199
District Khanewal	4251	3586	652

Lady health workers (LHW)

We interviewed 29 LHWs. Most (18/29) of these were young women between the ages of 18 and 30, 14/29 had less than a 10th grade education while 15/29 had at least a 10th grade education. About half (14/27) had been working as an LHW for 5 years or more and 4/27 were new to the position within the past year.

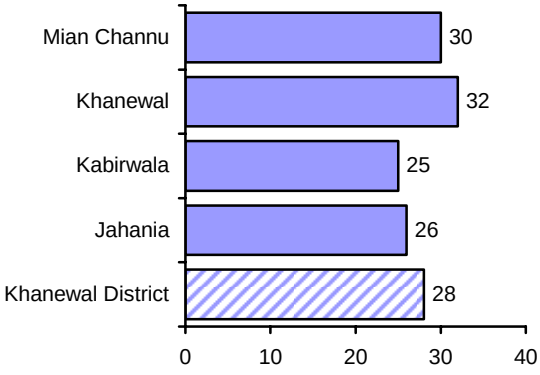

Figure 3 % of children with diarrhoea in the last 2 weeks

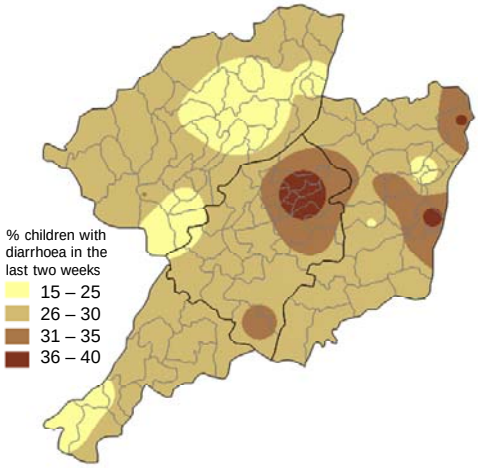

Figure 4 % of children with diarrhoea in the last 2 weeks (map)

Table 4 % households using different sources of drinking water

	Piped	Ground Water	Surface Water	N
Janania	-	100	-	515
Kabirwala	6	94	-	733
Khanewal	1	99	1	410
Mian Channu	2	98	-	738
Khanewal District	3	97	<1	2396

Table 5 % households with different conditions for drinking water containers

	Covered	Clean	Raised	Covered, clean, raised
Janania	99	86	64	60
Kabirwala	97	82	70	63
Khanewal	96	90	57	53
Mian Channu	97	84	46	41
Khanewal District	97	85	59	53

Childhood Diarrhoea

Frequency of childhood diarrhoea

Among children aged less than 60 months, 28% (976/3482) had suffered diarrhoea during the last two weeks and 75% (2629/3482) had suffered diarrhoea in the past 12 months.

As shown in figure 3, the proportion of children with diarrhoea during the last two weeks was rather higher in Mian Channu and Khanewal tehsils than in Kabirwala and Jahania. The map in Figure 4 shows the variation across the district in the proportion of children under 5 years old with diarrhoea in the last two weeks.

In about half (54%; 1077/2345) the children who had diarrhoea in the past 12 months their last episodes went on for longer than three days and 12% (317/2621) had blood in their stool during the last episode.

Variables potentially related to childhood diarrhoea

The field teams collected information about variables at household level potentially related to the risk of diarrhoea in children.

Drinking water

Nearly all (97%; 2331/2396) households in Khanewal rely on ground water as their main source of drinking water with only a few using either piped water (3%; 61/2396) or surface water (0.3%; 4/2396) (Table 4). As a consequence, nearly all households have a water source defined as a protected source (99%; 2370/2396).

Very few households treated their water in any way (1%; 27/2347) and those that did most commonly boiled it.

Across the district 74% (1748/2389) respondents allowed interviewers to inspect the household drinking water container. Of these, 97% (1695/1744) were covered, 85% (1476/1738) were clean, and 59% (1022/1733) were raised above ground level. Some

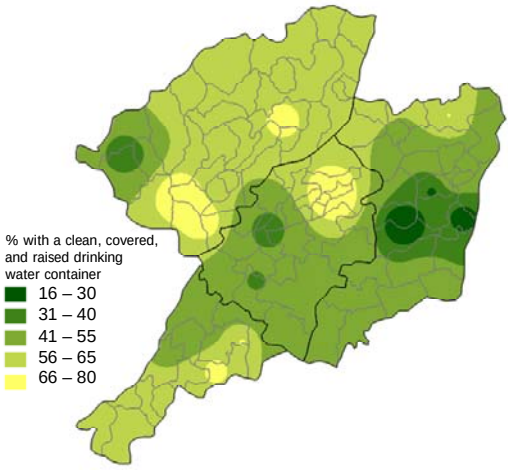

Figure 5 % households with covered, clean, raised drinking water container (map)

Table 6 % households using and having latrines

	Use a latrine	Have a latrine
Jahania	66	64
Kabirwala	52	48
Khanewal	54	52
Mian Channu	76	74
Khanewal District	61	58

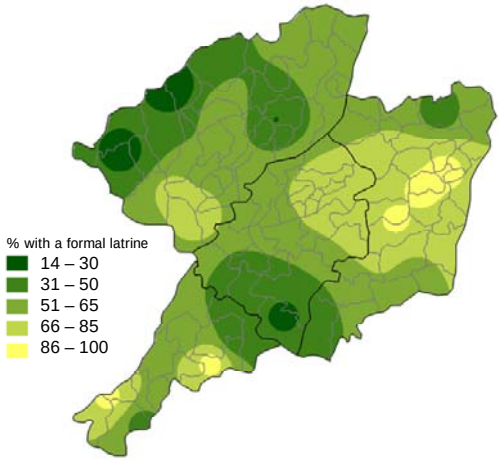

Figure 6 % households with a formal latrine (map)

"It is essential to have a latrine in the house. Children are protected from illnesses and the honour of young girls also remains safe."
Female focus group, Jahania tehsil

"Children get diarrhoea even where they have access to a latrine in their houses. It is important to keep a latrine clean."
Female focus group, Kabirwala tehsil

"It does not make any difference whether a house has a latrine or not. Children get diarrhoea either way."
Female focus group, Kabirwala tehsil

"We do not need latrines in big villages. They have vast fields that people use without any difficulty.
Male focus group, Mian Channu tehsil

53% (928/1734) met the ideal conditions of being covered, clean *and* raised (Table 5).

The map in Figure 5 shows the variation in proportion of households with a covered, clean, raised drinking water container across the district.

Latrines

Across the district, 61% (1503/2399) of households used a latrine (either a communal or household latrine). Some 58% (1428/2385) of households had some formal type of latrine. Most households without a latrine (90%; 731/819) said this was because they could not afford to have one. The proportions of households using a latrine and having a formal latrine in the household in the different tehsils are shown in Table 6.

The map in Figure 6 shows the variation in households with a formal latrine across the district.

Focus group views about latrines

The community focus groups (of men and women separately) in the sample communities discussed some of the issues around latrines. They first discussed whether, from what they knew, children from households where the members did not use a latrine seemed to get more diarrhoea. Most groups agreed this was the case. Some people noted that the latrines did not help unless they were kept clean. A few were not convinced that latrines made any difference, or considered that they were not necessary in villages surrounded by large fields that people could use for defaecation.

Coming to the issue of what could be done to help households install and use latrines, most groups considered that outside financial or technical support was needed, although some also mentioned the need to raise awareness of the benefits of latrines in some households. Most groups were of the opinion that there

"The poor are not even able to educate their children How can they construct latrines?"
Female focus group, Khanewal tehsil

"People will construct latrines only when they have access to proper drainage."
Female focus group, Khanewal tehsil

"The government should give us employment so that we may work hard, earn money and construct latrines on a self-help basis."
Female focus group, Jahania tehsil

"This problem is better solved if we all sit together."
Male focus group, Kabirwala tehsil

"Even when the government provides funds, it does not follow-up to find out where they are being used."
Female focus group, Mian Channu tehsil

Table 7 % households observed with different hygienic conditions in and around the house

	Garbage	Sewage water	Excreta
Janania	83	44	61
Kabirwala	85	47	71
Khanewal	81	49	61
Mian Channu	63	34	41
Khanewal District	77	43	59

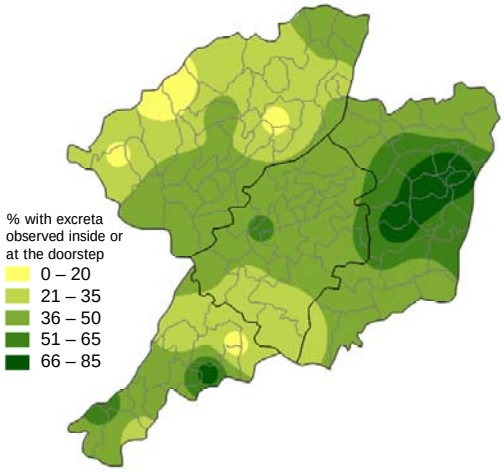

Figure 7 % households with excreta observed inside or at the doorstep (map)

Table 8 Frequency of LHW visits to households

	% households
Never visited	41
Within the last month	54
More than a month ago, within last 3 months	4
More than 3 months ago, within last 6 months	<1
More than 6 months ago but within a year	<1
N	2325

was little communities could do to help themselves, mentioning that their neighbours would be unlikely to take their advice or that they were too poor to help themselves. Generally they felt it was the responsibility of the government to help them. This help should, they suggested, be financial and technical. Some participants pointed out that building latrines was no use without a proper sewerage system and water supply. On the other hand, in some communities the focus groups suggested they needed to help themselves, with or without assistance from the government. And some were sceptical about the government helping them even if there were funds to do so.

Household hygiene

The field teams conducting the household interviews observed and noted some aspects of household hygiene. They observed garbage in the household compound or at the doorway in 77% (1842/2388) of households. They noted sewage water inside the compound or at the doorstep in 43% (1019/2392) of households and excreta (animal or human) inside or at the doorstep of 58% (1383/2389) of households. Table 7 summarises the observations about household hygiene in the four tehsils.

The map in Figure 7 shows the variation in proportion of households with excreta observed in or around the homestead across the district.

Information about prevention of diarrhoea from the lady health worker (LHW)

Some 60% (1447/2496) of mothers said an LHW visited their household. In some households more than one mother was interviewed. Over half the households (60%; 1329/2390) had been visited by an LHW and about half of all households (54% (1228/2325) had been visited in the last month. (Table 8).

Few (6%; 87/1410) of those mothers reporting being visited by an LHW recalled that the LHW told them anything about preventing diarrhoea in children. When considered all mothers (including those not visited by an LHW) only 4% (87/2459) had been told by an LHW about prevention of diarrhoea.

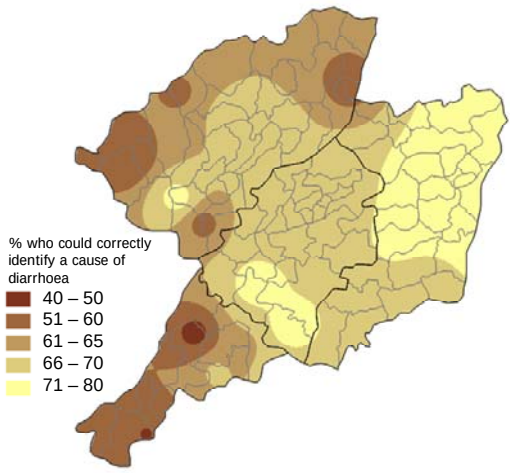

Figure 8 % of mothers who could correctly cite a cause of diarrhoea in children (map)

The mothers' recall of what the LHW told them about prevention of childhood diarrhoea contrasts with the information from the interviews with LHWs covering some of the sample communities (see later section). Most of the LHWs reported telling the mothers they visited about prevention of diarrhoea.

Mothers' knowledge of causes of diarrhoea

About two thirds of mothers (67%; 1626/2464) could correctly identify a cause of diarrhoea in children. The map in Figure 8 shows the variation across the district in the proportion of mothers who could cite a correct cause of diarrhoea in children.

Analysis of risk of diarrhoea in children

Table 9 Variables potentially associated with the risk of diarrhoea in children

- Urban/rural location
- Tehsil
- Education of the household head
- Education of the mother
- Household vulnerability
- Sex of the child
- Age of the child
- Nutritional status of the child
- Mother's knowledge of causes of diarrhoea
- LHW advice about diarrhoea
- Protected water source
- Good water storage
- Household latrine
- Sewage in household or around door
- Excreta in household or around door
- Garbage in household or around door
- Garbage in streets (from community profile)
- Sewage in streets (from community profile)
- Stagnant water in streets (from CP)*

We collected information about a number of variables that might be associated (positively or negatively) with the risk of diarrhoea in children (diarrhoea in the last two weeks in children aged under 60 months old). These are listed in Table 9. Several of these variables, examined separately, were associated with the risk of diarrhoea. We then undertook multivariate analysis to examine the effects of each of these variables, taking into account the effects of the others.

Education of the mother

Children whose mothers had some formal education were less likely to have suffered diarrhoea in the last two weeks, taking account of the effects of other variables[1]. The education of the mother interacted with some of the other variables, so we undertook separate analyses for children whose mothers had some education and children whose mothers had no education.

Among children whose mothers had some education:

- Younger children (0-36 months) were more likely to have had diarrhoea in the last two weeks than older children[2].
- Children whose mothers could name a correct cause of diarrhoea were less likely to have had diarrhoea than children whose mothers lacked this knowledge[3].

[1] Weighted OR 0.70, 95% CI 0.58-0.84, 231/979 children whose mothers had some education had diarrhoea compared with 743/2501 whose mothers had no education

[2] Weighted OR 2.96, 95% CI 2.08-4.22, 184/6260 younger children had diarrhoea compared with 35/246 older children

[3] Weighted OR 0.71, 95% CI 0.52-0.99, 146/675 children whose mothers knew a cause of diarrhoea had diarrhoea compared with 82/292 whose mothers did not know a cause of diarrhoea

Table 10 Model of effects of variables on risk of diarrhoea in children whose mothers had some education

	Crude OR	Weighted OR	95% CI of weighted OR
Younger age	2.70	2.80	1.87-4.19
Mothers know a cause of diarrhoea	0.75	0.71	0.50-0.99
Formal latrine	0.63	0.57	0.37-0.86

OR=Odds Ratio, a measure of relative risk

- Children from households with a formal latrine were less likely to have had diarrhoea than children from households without a formal latrine[4].

The final analysis model for children whose mothers had some education is shown in Table 10.

Among children whose mothers had no education:

- Younger children (0-36 months) were more likely to have had diarrhoea in the last two weeks than older children (37-59 months)[5].
- There was no effect of a household latrine on the risk of a child having diarrhoea

The fact that a latrine in the household is only protective against diarrhoea if the mother of the child has some education supports the view voiced by some focus group participants that a latrine will only be of benefit if it is kept clean and if mothers teach their children how to use it properly. Mothers with some education are apparently more likely to appreciate this. Their knowledge about causes of diarrhoea is apparently also put into practice, since the children of those educated mothers who could cite one or more of the causes of diarrhoea were less at risk of diarrhoea.

We can estimate the number of children who could be protected from diarrhoea by different interventions. In Table 11, the "gain" per thousand children is the number of children who could be saved from having diarrhoea if all children had the intervention in question. If an intervention ensured that all mothers *with some education* knew about causes of diarrhoea, this could prevent diarrhoea in 23 per thousand children. If all households had latrines, where there was an educated mother this could prevent diarrhoea in 19 per thousand children. But these interventions would only be effective among children whose mothers have some education. Ensuring all households have a latrine, without paying attention to the education of mothers, would not reduce the number of cases of childhood diarrhoea.

Table 11 Potential gains in diarrhoea prevention among children whose mothers have some education

Intervention	Proportion requiring intervention (%)	Weighted risk difference	95% CI weighted risk difference	Weighted gain per 1000 children
Focus on younger children	64.2	0.167	0.113-0.222	107
Teach mothers about causes of diarrhoea	29.9	0.078	0.002-o.154	23
Ensure latrines in all households	14.4	0.135	0.044-0.226	19

Proportion requiring intervention means those who do not currently have the favourable condition, eg % who currently have no latrine

[4] Weighted OR 0.55, 95% CI 0.36-0.82, 184/832 children from households with a latrine had diarrhoea compared with 44/140 from households without a latrine

[5] Weighted OR 1.57, 95% CI 1.29-1.91, 506/1499 younger children had diarrhoea compared with 180/731 older children

Treatment of diarrhoea in children

The following descriptions of experiences with treating diarrhoea are based on the 75% (2629/3482) of children less than 60 months old who had suffered an episode of diarrhoea in the last 12 months. Recall of episodes longer than 12 months ago is less likely to be clear.

Advice from the LHW

Few of those mothers reporting being visited by an LHW (13%; 181/1410) recalled that the LHW told them anything about treating diarrhoea in children. When considered all mothers (including those not visited by an LHW) only 8% had been told about treatment (181/2459) of diarrhoea.

Mothers' knowledge and household management of diarrhoea

Some 75% (1915/2493) of mothers reported they would give a child more fluids during an episode of diarrhoea while 60% (1530/2491) said they would give the child either the same or more food.

When actually treating an episode of diarrhoea in the last 12 months in children under five years old, mothers provided 69% (1870/2626) of the children with more fluids and 63% (1689/2621) with either the same or more food. The variation across the district in the proportion of children given more fluids in their last episode of diarrhoea during the last year is shown in the map in Figure 9.

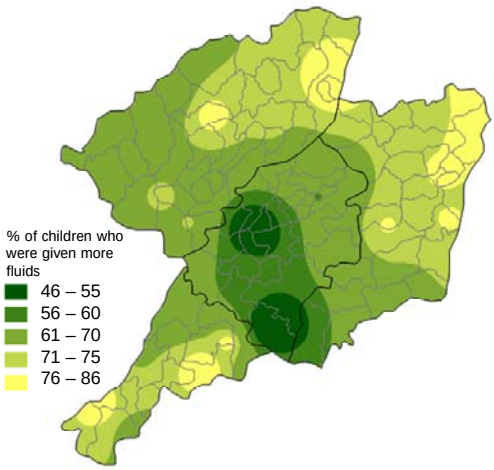

Figure 9 % children under 5 years old given more fluids during last episode of diarrhoea (map)

In most cases (82%; 2152/2606) the mothers or other carers in the home reported giving the child medicine to stop the diarrhoea. The variation across the district is shown in Figure 10. This is generally not good practice and these anti-diarrhoeal medications can be dangerous for young children. However, it is clearly a common practice in home management of diarrhoea to give such medication and anti-diarrhoea medicines are perhaps even prescribed by health care practitioners (see below).

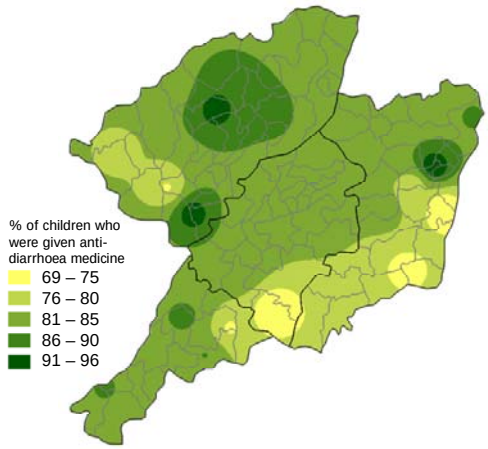

Figure 10 % children under 5 years old given anti-diarrhoea medicine during last episode of diarrhoea (map)

"Children whose mothers give them water during diarrhoea do not develop the disease of dryness."
Female focus group, Kabirwala tehsil

"The poor cannot afford injections and drips. It is better to give the child water in the house."
Female focus group, Mian Channu tehsil

"Mothers are so ignorant they even stop fresh air reaching their children with diarrhoea. How can they be expected to give their children more water?"
Male focus group, Mian Channu tehsil

"They have a lot of children and it gets difficult to look after all of them"
Female focus group, Jahania tehsil

"Spiritual practitioners give amulets to women and tell them to make the child drink less water."
Female focus group, Mian Channu tehsil

"People from the health department must call on every house to tell them about this."
Male focus group, Kabirwala tehsil

Table 12 % children taken to different types of facilities for treatment of diarrhoea in the past 12 months

	No where	Gov't facility	Private facility	Unqualified	NGO
Janania	20	5	21	52	2
Kabirwala	19	5	17	59	0.4
Khanewal	24	3	22	51	0.2
Mian Channu	32	2	26	40	0
Khanewal district	24	4	22	50	0.4

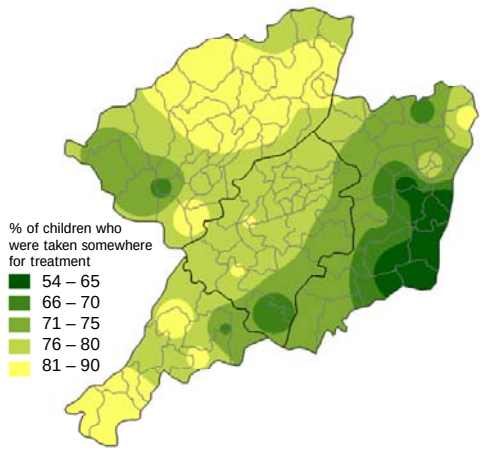

Figure 11 % children under 60 months old taken for treatment during their last episode of diarrhoea (map)

Focus group views about fluids for children with diarrhoea

Clearly not all mothers or caregivers know to give children with diarrhoea extra fluids, and even less manage to do this in practice. We discussed this in the community focus groups.

The groups first discussed why many mothers *do* give extra fluids to children with diarrhoea. Participants explained that giving fluids prevented children from becoming sick with dehydration. Some also mentioned that the child would be thirsty and ask for water, while others noted that it could avoid having to take the child for medical attention outside the home.

In discussing why some mothers do *not* give children with diarrhoea extra fluids, most groups mentioned poor education or lack of knowledge among mothers, while others noted mothers may not have time to give the extra fluids, that the water available was poor quality, or that they had misconceptions about adverse effects of giving extra fluids.

The groups suggested that health workers, especially LHWs, community and religious leaders, and parents or other family members could give the message about extra fluids to mothers.

Taking children with diarrhoea for treatment

Among those children less than 60 months old who had suffered diarrhoea in the last 12 months, 24% (622/2619) were not taken anywhere for treatment. The most popular choice for treatment was an unqualified practitioner. Half (51%; 1320/2619) of the children with diarrhoea were taken to an unqualified practitioner, 21% (560/2619) to a private facility or practitioner, only 4% (102/2619) to a government facility, and less than 1% (15/2619) to an NGO service. The type of service used is shown by tehsil in Table 12.

The variation across the district in the proportion of children with diarrhoea taken somewhere for medical care is shown in the map in Figure 11.

Experience of treatment for diarrhoea

Virtually all children (99%; 2755/2775) who were taken for treatment were seen by a doctor/ practitioner or health worker regardless of the type of facility.

ORS and other medication

Children taken to a government facility for treatment were more frequently provided with ORS (62%; 66/101) than children taken to either a private facility (56%; 315/560) or an unqualified practitioner (46%; 606/1307). Unqualified practitioners (81%; 1067/1301) and private facilities (47%; 271/560) more commonly provided any other medicines if prescribed than did government facilities (34%; 40/101) (Figure 12). We do not know what these other medicines were nor in how many cases any other medicines were prescribed. In most cases no "other medicines" should be prescribed. Anti-diarrhoea medicines can be dangerous in young children, and antibiotics are not advisable in most cases of diarrhoea. Government services apparently gave more ORS than the other two services but we do not know if they prescribed less "other medicines" than the other service providers.

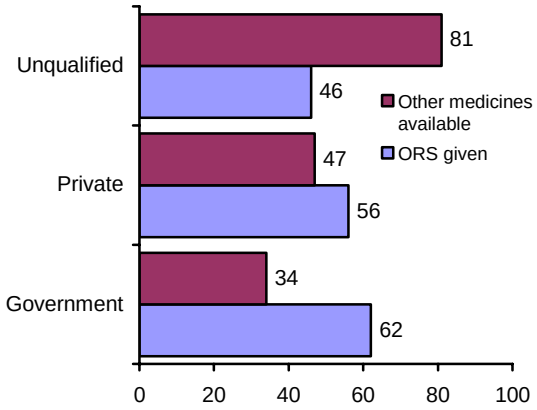

Figure 12 % of children provided ORS and availability of other medicines from health facilities or practitioners

Explanation of illness

More of the parents who took their child to a private practitioner or clinic felt they were given a full explanation about the child's condition (63%; 365/559), than the parents who took their child to a government facility (50%; 51/102) or to an unqualified practitioner (46%; 603/1295) (Figure 13)

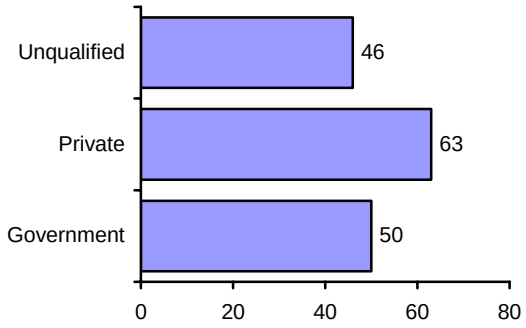

Figure 13 % of mothers of children with diarrhoea who thought they got a full explanation of their child's illness

Satisfaction with service received

Generally, satisfaction with the behaviour of the doctor or health worker was high. Satisfaction among users of unqualified (97%; 1270/1306) and of private practitioners (96%; 541/560) was slightly greater than among users of government facilities (92%; 95/102). But for all service types, more than 9 out of every 10 parents of children with diarrhoea said they were satisfied with the behaviour of the doctor or health worker.

Similarly, nearly all mothers were satisfied with the treatment received from the facility for all facility types.

Table 13 Why mothers were satisfied with the treatment from the facility (% mothers)

Reasons	Govt	Private	Unqualified
Good doctor/staff	12	20	13
Good facilities/services	2	-	1
Good treatment	78	78	83
Low cost/free treatment	7	<1	2
Good access/nearby	1	<1	2
No other choice	-	-	<1
N	95	534	1238

Table 14 Why mothers were dissatisfied with the treatment from the facility (% mothers)

Reasons	Govt	Private	Unqualified
Doctor/staff not available	-	11	-
Poor facilities/services	21	4	-
Poor treatment	79	62	81
Too expensive/can't afford	-	17	6
No other choice	-	5	13
N	5	20	66

Table 15 % cases that paid, mean and median amounts paid (of those who paid) for travel for treatment of diarrhoea

Facility type	% cases paid	Mean amount (Rs)	Median amount (Rs)
Government	60 (38/101)	39	20
Private	70 (353/554)	68	20
Unqualified	16 (200/1313)	81	20

Table 16 % cases that paid, mean and median amounts paid (of those who paid) for diarrhoea treatment at the facility

Facility type	% cases paid	Mean amount (Rs)	Median amount (Rs)
Government	91 (93/101)	90	5
Private	96 (527/552)	276	60
Unqualified	96 (1227/1276)	123	40

Table 17 % cases that paid, mean and median amounts paid (out of those who paid) for diarrhoea medicines or investigations outside the facility

Facility type	% cases paid	Mean amount (Rs)	Median amount (Rs)
Government	73 (59/99)	953	100
Private	59 (318/549)	454	200
Unqualified	19 (218/1301)	300	80

Some 92% (95/102) were satisfied with the treatment at a government facility, 96% (534/560) were satisfied with treatment from a private facility and 94% (1238/1309) were satisfied with their treatment from an unqualified practitioner.

For all facility types mothers most frequently reported being satisfied with the treatment at the facility simply because they received "good treatment". Some were satisfied because of the good doctors and staff available at the facility (Table 13).

Those few people who were dissatisfied with the facility most commonly simply cited "poor treatment" as their reason for all types of facilities. Other reasons mentioned are shown in Table 14.

Costs of treatment

Travel

In 60% (38/101) of cases where children were taken for treatment to a government facility, families had to pay something for travel. The mean amount for these families was Rs39. For private treatment families had to pay for travel in 70% (353/554) of cases with a mean amount of Rs68. Few families who took their children to unqualified practitioners had any travel costs (16%; 200/1313) averaging Rs81. (Table 15)

Treatment at the facility

Most families had to pay for treatment at the facility or practitioner for all types of facilities. The mean amount paid at a government facility (Rs90) was less than that paid at either a private facility (Rs276) or an unqualified practitioner (Rs123) (Table 16)

Medicines or investigations outside the facility

In about three quarters cases of children going for treatment at a government facility (73%;59/99) and in about half for those going to a private facility (59%; 318/549) families had to pay for medicines or investigations outside the facility. Families had to pay in fewer cases (19%; 218/1301) when getting treatment at unqualified practitioners. The mean amount paid for medicines or investigations after visiting a government facility (Rs953) was higher than for either a private (Rs454) or an unqualified facility (Rs300). (Table 17)

Childhood respiratory infections

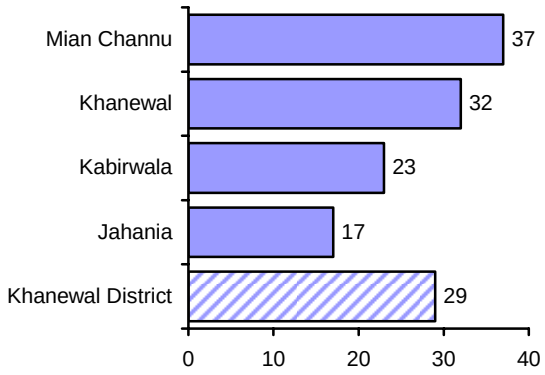

Figure 14 % of children under 60 months old with ARI in the last 2 weeks

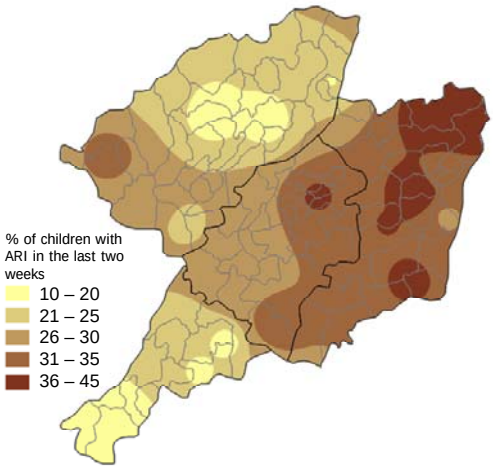

Figure 15 % of children under 60 months old with ARI in the last 2 weeks (map)

Table 18 % households with different stove types for cooking

Stove type	% households
Wood stove	89
Sui gas stove	10
Kerosene stove	<1
Electric stove	<1
Cow dung	1
Gas cylinder	1
N	2397

Frequency of childhood respiratory infections

Among children aged less than 60 months, 29% (959/3493) had suffered an acute respiratory infection (ARI) during the last two weeks and 75% (2602/3493) suffered from ARI during the past year. The information about episodes of ARI came from the mother or main carer of the child. They were asked about episodes when the child had a cough, fever and rapid breathing.

The proportions of children with ARI during the last two weeks are shown by tehsil in Figure 14. ARI seems to be rather less frequent in Jahania and Kabirwala tehsils than in Khanewal and Mian Channu tehsils.

The map in Figure 15 shows the variation across the district in proportion of children under 60 months old with ARI in the last two weeks.

Variables potentially related to ARI

The field teams collected information about factors at household level that might have an impact on the risk of respiratory infections in children.

Kitchen and cooking arrangements

Some 57% (1418/2400) of households had their kitchen or cooking area separate from the main living area. And 66% (1622/2400) had their kitchen or cooking area separate from the sleeping area.

The types of cooking stove used are shown in Table 18. They were mostly wood stoves. We categorized stoves into those producing smoke and those not producing smoke on the basis of the type of fuel. Across the district just 10% (295/2397) of households used a cooking stove that did not produce smoke.

Table 19 % households with different heating systems

Heater type	% households
None	64
Wood heater	29
Sui gas heater	4
Coal heater	1
Kerosene heater	<1
Electric heater	1
Cow dung	<1
Gas cylinder	<1
N	2400

Heating arrangements

Table 19 shows the heating methods used in households. Some 36% (881/2400) of households used some type of heating system, mostly wood stoves. We categorised heating systems into those producing smoke and those not producing smoke. Some 69% (1657/2400) of households used a heating system not producing smoke (or no heating system at all) and 32% (743/2400) used a heating system likely to produce smoke.

Smoking in the household

We asked about smoking by members of the household, and in particular about smoking within the household. Some 54% (1116/2396) of households had a least one member who smoked inside the household.

Ventilation

The field teams observed ventilation arrangements in the households. They recorded some sort of ventilation system in 83% (2002/2374) of households across the district.

Focus group views about smoke in the household

There is evidence from the literature that exposure to smoke in the household, through cooking stoves, heating arrangements, or smoking by members of the household, increases a child's risk of ARI and can have adverse long term consequences for lung development. In the community focus groups we discussed what could be done to improve the household environment so as to prevent children's exposure to smoke.

The group participants suggested using alternative fuels, providing more ventilation, keeping the kitchen and sleeping areas separate, and ensuring that household members did not smoke indoors. However, they also mentioned problems with implementing these ideas.

The groups suggested that while they themselves could do things like avoiding smoking in front of children, the government would have to help, for example by providing access to gas as a fuel.

"Those who have only one room for eating as well as sleeping, what can they do about it?"
Female focus group, Khanewal tehsil

"The government cannot install exhausts in every house. People should at least do this themselves."
Female focus group, Jahania tehsil

"If a husband smokes, he should go out and smoke. But here husbands sit and exhale the smoke onto their wives."
Female focus group, Kabirwala tehsil

"If we have access to gas, we will save more and there will be less smoke as well."
Male focus group, Mian Channu tehsil

Analysis of risk of childhood ARI

Table 20 Variables potentially associated with the risk of ARI in children

- Urban/rural location
- Tehsil
- Education of the household head
- Education of the mother
- Household vulnerability
- Sex of the child
- Age of the child
- Nutritional status of the child
- Measles vaccination of the child
- Household heating system
- Heating system producing smoke
- Kitchen separate from living area
- Sleeping area separate from kitchen
- Cooking stove producing smoke
- Ventilation for household
- Household members smoking inside

As described above, we collected information about several variables that might be associated (positively or negatively) with the risk of ARI in children (ARI in the last two weeks in children aged under 60 months old). These are listed in Table 20.

We found no association between most of these variables and the risk of ARI in the last two weeks. The only two variables that were associated with the risk of ARI were education of the mother and whether the household used some type of heating system (whether or not it produced smoke – almost all the systems in use did produce smoke). We examined the effects these two variables together, each taking into account the effect of the other.

Education of the mother
Children whose mothers had some education were slightly more likely to be reported by their mothers to have had ARI in the last two weeks, compared with children whose mothers had no education[6]. This may be due to improved recognition of ARI by mothers with some education.

Household heating system
Children from households with a heating system were less likely to have had ARI in the last two weeks, compared with children from households without a heating system[7]. This relationship between having a heating system and the risk of ARI in children was much more marked in Jahania tehsil, where children from households without a heating system had nearly three times the risk of ARI compared with children from households with a heating system[8].

As shown in Table 21, if all households had a heating system this could be predicted to reduce the number of cases of ARI in the district by 40 per thousand children.

Table 21 Potential gains in ARI prevention

Intervention	Proportion requiring intervention (%)	Weighted risk difference	95% CI weighted risk difference	Weighted gain per 1000 children
Ensure heating system in all households	61.7	0.066	0.039-0.092	40

Proportion requiring intervention means those who do not currently have the favourable condition, eg % who have no heating system

[6] Weighted OR 1.16, 95% CI 0.98-1.37, 299/985 children whose mothers had some education had ARI compared with 660/2506 whose mothers had no education

[7] Weighted OR 0.68, 95% CI 0.58-0.79, 302/1337 children from households with a heating system had ARI compared with 657/2156 from households without a heating system

[8] Weighted OR 0.36, 95% CI 0.24-0.54, in Jahania tehsil 33/342 children from households with a heating system had ARI compared with 104/455 without a heating system

Information from the lady health worker

Of the 60% (1447/2496) of mothers that reported an LHW visited their household less than 1% (0.6%; 12/1407) recalled that the LHW told them anything about recognising when a child has ARI and just 2% (33/1409) recalled being told anything about treating a child with ARI.

Considering all mothers, including those not visited by an LHW, only 0.5% (12/2496) were told by an LHW about recognition of ARI and 1% (33/2459) about treatment for ARI.

Treatment of ARI

The following description of experiences with treating ARI are based on the 75% if children under 60 months who had suffered an ARI episode in the last 12 months. Recall of episodes longer than 12 months ago is less likely to be clear.

Source of treatment

Among those children less than 60 months old and who suffered an ARI episode in the last 12 months, 15% (371/2594) were not taken anywhere for treatment. The most common choice for treatment was an unqualified practitioner. Across the district, 57% (1475/2594) were taken to a private non-qualified practitioner, 23% (612/2594) were taken to a private, qualified practitioner, only 4% (107/2594) were taken to a government facility, and 1% (29/2594) were taken to an NGO service (Figure 16). Table 22 shows the proportions of children taken to different types of facilities for treatment for ARI in each tehsil.

The map in Figure 17 shows the variation across the district in the proportion of children with ARI taken anywhere for treatment.

Views of community focus groups

The focus groups discussed why some children with ARI are not taken anywhere for treatment. They also considered the ways in parents which could be encouraged and supported to take children with ARI for treatment.

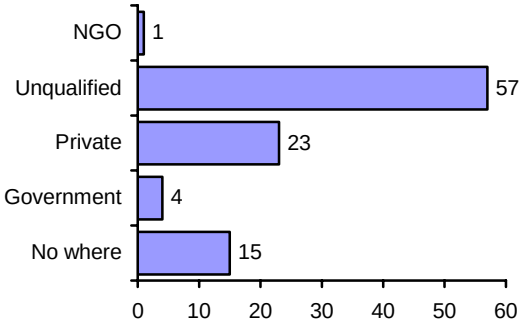

Figure 16 % children with ARI taken to different health care providers

Table 22 % children taken to different types of facilities for treatment of ARI in the past 12 months

	No where	Gov't facility	Private facility	Unqualified	NGO
Janania	8	6	25	59	3
Kabirwala	12	4	16	66	1
Khanewal	18	4	23	55	0.2
Mian Channu	18	3	30	50	0.1
Khanewal district	15	4	23	57	1

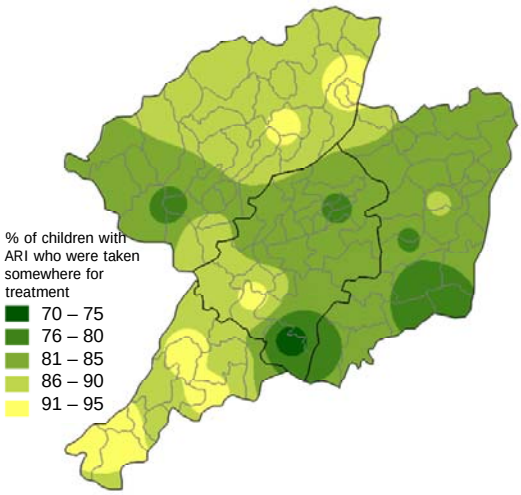

Figure 17 % children under 60 months old taken anywhere for treatment in last episode of ARI (map)

"We earn 100 rupees a day. If we buy medicine with it, the rest of the household members will starve."
Male focus group, Mian Channu tehsil

"Where can we take our children for treatment? We don't have access to hospitals."
Female focus group, Khanewal tehsil

"Children get well through household remedies."
Female focus group, Jahania tehsil

"People have a lot of children. That's why they are not bothered about them."
Male focus group, Mian Channu tehsil

"We must have access to either transport or a hospital nearby."
Male focus group, Khanewal tehsil

"The government must keep an eye on public doctors so that they perform their duties responsibly."
Female focus group, Jahania tehsil

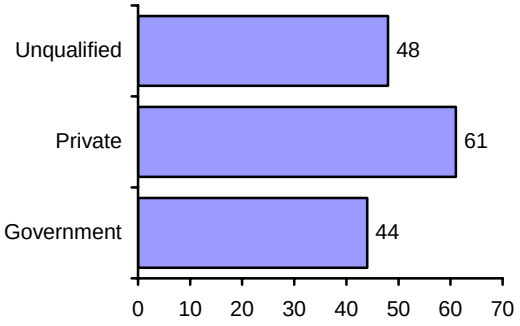

Figure 18 % mothers/caregivers provided with a full explanation of their child's illness, for children with ARI

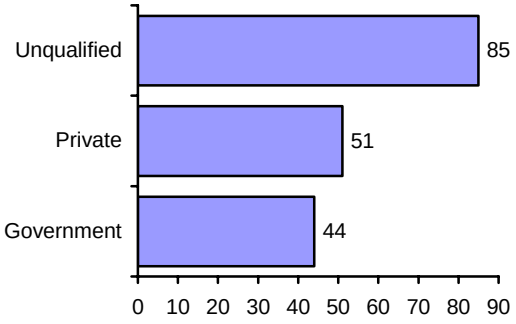

Figure 19 % of parents of children with ARI provided with all medicines prescribed

Focus group participants explained the problems of poverty, meaning they could not afford the visit, and especially the cost of medicines which were usually not available in government health facilities, and of lack of access to health facilities. A few expressed the view that the children would get better without the need for taking them for treatment or even that some parents did not pay attention to the needs of their children.

The main suggestions from the groups to support people to take their children with ARI for treatment were concerned with better access to health facilities, as well as more medicines available in health facilities, and better treatment from doctors and health workers.

Service received from health care providers

Virtually all children (99.5%; 2172/2183) who were taken for treatment were seen by a doctor or health worker regardless of the type of facility they went to.

Private practitioners provided a full explanation of the child's illness more often than either government or unqualified practitioners. Private practitioners provided a full explanation for 61% (374/593) of children, government practitioners for 44% (45/107) of children and unqualified practitioners for 48% (702/1435) of children (Figure 18).

There was greater variation between facility/practitioner types around providing all the prescribed medicines when the child with ARI was taken for treatment. Parents taking their children with ARI to an unqualified practitioner were more frequently (85%; 1227/1443) provided with all medicines than those who sought treatment at a private (51%; 311/593) or government (44%; 46/105) facility (Figure 19).

Satisfaction with treatment received

Nearly all mothers were satisfied with the behaviour of the doctor or health worker (98%; 2102/2146) and with the treatment from the facility (97%; 2086/2150) for all facility types.

For all three types of facilities or /practitioners the most common reason for being satisfied was the "good treatment" received (79%; 1625/2060) followed by the good doctors/ staff at the facility (17%; 350/2060).

Those few parents who were dissatisfied with the facility most commonly cited "poor treatment" as their reason (46/62), for all types of facilities. Not having any other choice (7/62) and not having good doctors or staff available (4/62) were also mentioned.

Costs of treatment of ARI

Travel

In 55% (56/106) of cases where children were taken for treatment to a government facility, families had to pay something for travel. The mean amount for these families was Rs36. For private treatment families had to pay in 64% (363/591) of cases with a mean amount of Rs58.
Few families who took their children to unqualified practitioners had any travel costs (16%; 241/1450) averaging Rs56. (Table 23)

Table 23 % cases that paid, mean and median amounts paid (out of those who paid) for travel for treatment of ARI

Facility type	% cases paid	Mean amount (Rs)	Median amount (Rs)
Government	55 (56/102)	36	20
Private	64 (363/591)	58	24
Unqualified	16 (241/1450)	56	20

Treatment costs at the facility

Most families had to pay for treatment at the facility or practitioner for all types of facilities. The mean amount paid at a government facility (Rs34) was less than that paid at either an unqualified practitioner (Rs99) or private facility (Rs292). (Table 24)

Table 24 % cases that paid, mean and median amounts paid (out of those who paid) for ARI treatment at the facility

Facility type	% cases paid	Mean amount (Rs)	Median amount (Rs)
Government	95% (100/106)	34	2
Private	94% (546/582)	292	95
Unqualified	94% (1358/1437)	99	50

Medicine or investigation costs outside the facility

In about half of the cases of children taken for treatment at a government facility (55%; 58/106) or a private facility (53%; 303/585) families had to pay for medicines or investigations outside the facility. Families had to pay in fewer cases (14% (201/1434) after getting treatment at unqualified practitioners. The mean amount paid after visits to a government facility (Rs198) was less than after visits to either a private qualified (Rs486) or an unqualified facility (Rs251). (Table 25)

Table 25 % cases that paid, mean and median amounts paid (out of those who paid) for ARI medicines /investigations outside the facility

Facility type	% cases paid	Mean amount Rs)	Median amount (Rs)
Government	55 (58/106)	198	100
Private	53 (303/585)	486	200
Unqualified	14 (201/1434)	251	100

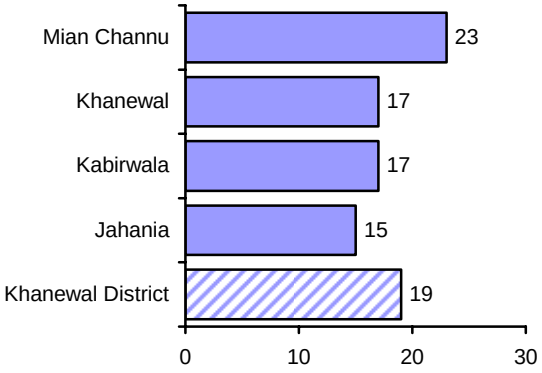

Figure 20 % children aged 10-59 months who have had measles, excluding cases at under 10 months old

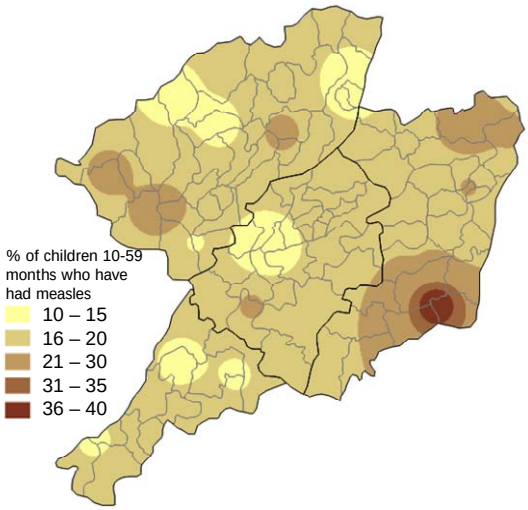

Figure 21 % children aged 10-59 months who have had measles, excluding cases at under 10 months old (map)

Table 26 Variables potentially associated with the risk of measles in children

- Urban/rural location*
- Tehsil
- Education of the household head
- Education of the mother
- Household vulnerability
- Sex of the child
- Age of the child*
- Nutritional status of the child
- Measles vaccination of the child*

* variables related to risk of measles in univariate analysis

Childhood measles

Frequency of childhood measles

The following analysis and description of the frequency of measles excludes children who were less than 10 months old at the time of the survey as well as those children who had measles at less than 10 months of age because diagnosis of measles in children under 10 months of age can be unreliable.

Among children 10-59 months old 19% (498/2690) had had measles, excluding measles cases at under 10 months old. The rate of measles infection in the different tehsils is shown in Figure 20. Measles was most common in Mian Channu tehsil and least common in Jahania tehsil.

The map in Figure 21 shows the variation across the district in the proportion of children aged 10-59 months who have had measles.

Analysis of risk of measles

We collected information about a number of variables that might be associated (positively or negatively) with the risk of measles in children (measles children aged 10-59 months and excluding 'measles' occurring at under 10 months old). These are listed in Table 26. Note that we excluded from the analysis cases of measles that occurred before measles vaccination or within one month after the vaccination (it takes a month for the protection to be fully developed). Those associated with the risk of measles when examined separately are marked with a (*). We then undertook multivariate analysis to examine the effects of each of these variables, taking into account the effects of the others. The model from the multivariate analysis is shown in Table 27.

Age of the child

Older children were more likely to have had measles than younger children[9]. This may simply reflect that they have had a longer time at risk, since we are examining the risk of *ever* having had measles.

[9] Weighted OR 2.81, 95% CI 2.25-3.50, 1221/1384 children aged 10-36 months did *not* have measles compared with 971/1306 children aged 37-59 months

Table 27 Model of effects of variables on the chance of *not* having measles

	Crude OR	Weighted OR	95% CI of weighted OR
Younger age	2.71	2.81	2.25-3.50
Measles vaccine	1.32	1.73	1.35-2.21

OR=Odds Ratio, a measure of relative risk

Measles immunisation

Children who had not been immunised against measles had 1.7 times the risk of having measles compared with children who had been immunised[10]. This is the protective effect of measles vaccine, taking into account other variables potentially related to the risk of contracting measles.

Population benefit from measles immunisation

We can estimate the number of children in the population of Khanewal who could be prevented from having measles if all children were immunised against measles.

If all children were immunised against measles, this could reduce the number of cases of measles in the district by 24 per thousand children (Table 28). At present, 190 per thousand children in Khanewal have had measles, so this would be a useful reduction.

Payment for cases of measles

We asked mothers whose children had had measles about the cost of treating the child. In order to ensure a reasonable recall of events, we restricted our analysis of costs to cases of measles in the last 24 months, among children 10-59 months old.

Of those children aged 10-59 months who had measles in the last 24 months, 63% (226/354) of their parents paid something for the treatment of the disease. Among those 226 who paid, the weighted mean amount was Rs 385 (median Rs 200, range 5-6000).

Table 28 Potential gains in measles prevention in children 10-59 months old

Intervention	Proportion requiring intervention (%)	Weighted risk difference	95% CI weighted risk difference	Weighted gain per 1000 children
Ensure all children are vaccinated	31.0	0.077	0.043-0.112	24

Proportion requiring intervention means those who do not currently have the favourable condition, eg % who are unvaccinated

[10] Weighted OR 1.73, 95% CI 1.35-2.21, 1487/1751 children who had received measles vaccine did *not* have measles compared with 638/787 children who had not received measles vaccine

Table 29 % children 12-23 months immunised

	BCG	DPT (full course)	Measles	Polio drops (in last 12 m)
Jahania	84	65	64	100
Kabirwala	71	45	44	100
Khanewal	86	76	74	100
Mian Channu	89	85	81	100
Khanewal district	81	67	65	100

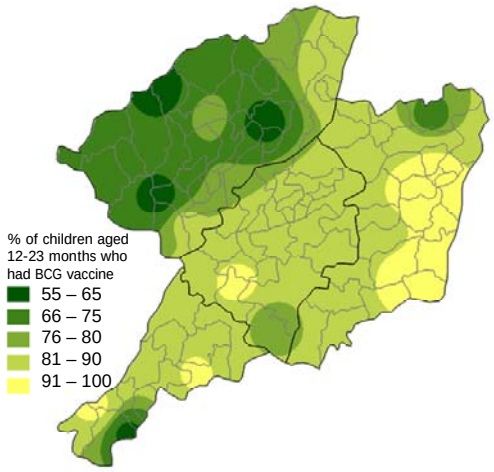

Figure 22 % children 12-23 months who had BCG (map)

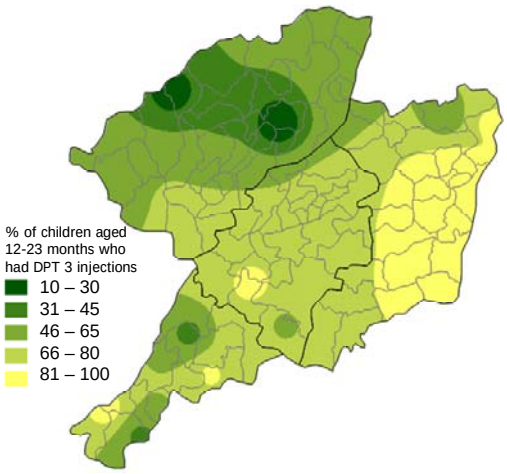

Figure 23 % children 12-23 months who had full course of DPT injections (map)

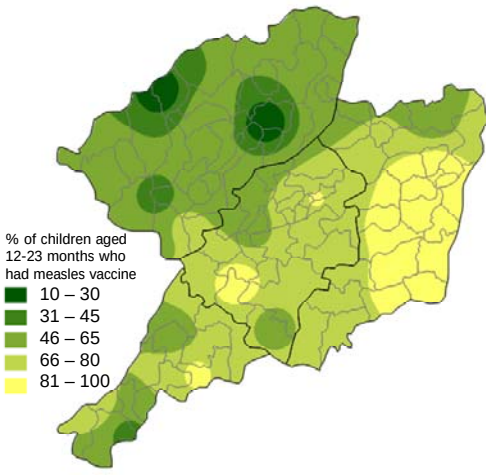

Figure 24 % children 12-23 months who had measles vaccine (map)

Childhood immunisations

Immunisation status of the children

In this section, the immunisation status of the children is described among children aged 12-23 months old, who should by then have completed all their immunisations. Table 29 summaries the immunisation status of children across the district, for the basic childhood vaccines.

BCG

Some 81% (526/644) of the children aged 12-23 months had received BCG vaccine, normally given at birth or soon after (Table 29). The map in Figure 22 shows the variation in BCG vaccination rate across the district.

DPT

Among the children aged 12-23 months, 80% (507/637) had received at least one DPT injection, and 67% (427/637) had received at least three injections (or a 'full course') during their first year of life. We may have over-estimated the number of children who received three injections of DPT vaccine because we included children whose mothers were only able to say they had "completed the course" without saying how many injections this comprised. The proportion of children who had received three injections, or a full course, of DPT vaccine, was rather lower in Kabirwala than in other tehsils, and highest in Mian Channu tehsil (Table 29). The map in Figure 23 shows the variation in rate of completion of a full course of DPT vaccine across the district.

Measles

Some 65% (413/635) of children aged 12-23 months had received the measles vaccine, usually given at around nine months old. The measles vaccine is the last in the series of childhood vaccines, and many children have apparently "dropped out" of the immunisation schedule before the age of nine months. Once again, Kabirwala tehsil had the lowest rate of measles immunisation and Mian Channu tehsil had the highest rate (Table 29). The variation in measles immunisation rate across the district is shown in the map in Figure 24.

Polio

Among children aged 12-23 months, 100% (638/639) had received polio drops at least once in the last 12 months (Table 29). When all children aged less than 60 months were included, almost all (97%; 3440/3530) had received polio drops in the last 12 months. Many of the children had received polio drops several times during the last year, with mothers reporting they got them "every time" the polio team visited.

Why children are not immunised

For each child (12-59 months) that had not received all the immunisations (or any of them), we asked the mother or main caregiver why not. The mothers most commonly cited problems of access: either that the health facility for immunisations was too far away or that the family could not spare the time of someone to take the child for immunisation. Table 30 shows the reasons given for children not being immunised. Carelessness or lack of awareness implied that immunisation of children was not prioritised by the family over other calls on their time and household economy. A few mothers said they thought vaccination caused harm or that they did not believe in it.

Table 30 Reasons why children (12-59 months) are not immunised

Reasons	% children
No facility nearby/difficult access	51
Lack of awareness	13
Carelessness of family	10
Vaccination would cause harm	9
Don't have time/ no one to take child	7
Don't believe in it / no tradition	8
Family does not allow	1
Can't afford it / too poor	1
N	782

Views from community focus groups

The community focus groups explored the reasons why some families did not have their children immunised. The participants were asked if they thought parents who did not immunise their children understood the risk they were taking and why they might still not immunise even if they did understand the risk.

"People are uneducated. That's why they are not aware of the dangers of lack of immunisations."
Male focus group, Kabirwala tehsil

"People don't feel that measles is such a serious disease. If they knew that, they would attach a lot of importance to it."
Male focus group, Jahania tehsil

Most of the focus groups agreed that probably people did not fully understand the risk they were taking by failing to immunise their children. Mostly they ascribed this to lack of education. Some mentioned that people did not realise how serious measles could be.

"Immunisation teams don't visit our area. How can anyone blame parents and their children?"
Female focus group, Kabirwala tehsil

"People are afraid that vaccinations will sterilize their children."
Male focus group, Khanewal tehsil

To explain why people who understood the risk would still not immunise their children, the groups mentioned the problems of access, especially difficulties for women travelling a distance from their homes. Some mentioned fears and misconceptions about adverse effects of immunisation. Others explained that the risk of something in the future would not weigh up against more immediate problems.

"Our problems are so many that we are only able to fathom coming dangers, not those that seem far away."
Male focus group, Mian Channu tehsil

"Vaccination teams just see 5-10 children. They leave and write down that all the children have been immunised."
Male focus group, Mian Channu tehsil

"When we go to a health centre we are told that the vaccine has ended."
Female focus group, Jahania tehsil

"My mother in law says: 'What kind of children have you produced that they ought to be immunised? We were never immunised, so why are you behaving so delicately?'"
Female focus group, Kabirwala tehsil

"Special programmes about vaccinations must be broadcast on television."
Male focus group, Jahania tehsil

"Two days before the immunisation team is expected, announcements must be made through mosques so that mothers may be prepared."
Female focus group, Kabirwala tehsil

Some groups complained about vaccination services, mentioning problems of visiting teams falsely inflating the number of children they actually immunised in a community, or mothers not finding vaccine or vaccinators when they visited health facilities. Others explained their families did not have a tradition of vaccination.

To help parents to have their children immunised, the groups suggested both increasing public awareness of the importance of immunisation, and at the same time increasing access to immunisation services. The idea of visiting immunisation teams was especially popular, but participants also mentioned improving access to health facilities offering immunisation.

Mothers' knowledge and perceptions about immunisations

Awareness about immunisation

Some 94% (2323/2490) of the mothers (or carers) had heard about immunisation for children from some source. Some mothers gave more than one source for their information. Their sources of information about immunisation for children are shown in Table 31. Their most common source of knowledge was announcements from the mosque or a visiting team. This information is really only about the logistics of getting the child to an immunisation point, rather than anything about the vaccines and their effects.

Table 31: Mothers' sources of information about immunisation for children

Indicator	% mothers
Announcement	34
Electronic media (TV, radio)	28
Family, neighbours, friends	14
Doctor/hospital	10
Vaccination team	8
LHV/ LHW/ Dai	5
Written material (newspapers, books, pamphlets)	1

Among the mothers, 84% (2043/2459) were able to mention at least one illness preventable by immunisation. In some cases, their perceptions about which diseases could be prevented by immunisation were incorrect. For example, some mothers thought "all illnesses" could be prevented by immunisation. Some 76% (1855/2459) of mothers were able to mention *correctly* at least one illness preventable by immunisation.

Views about benefits of immunisation

The interviewers first asked the mothers what they believed their neighbours thought about immunising children. Not all the mothers knew what their neighbours' views on this matter were. Some 91% (2268/2496) of the mothers said their neighbours

thought it was worthwhile to immunise children, 2% (50/2496) said their neighbours did not think it worthwhile, and 7% (178/2496) said they did not know what their neighbours thought about it.

Coming to their own views on the question, 96% (2387/2495) of mothers thought it was worthwhile to immunise children, 2% (67/2495) thought it was not worthwhile, and 2% (41/2495) did not know if it was worthwhile or not.

Almost all mothers (98%; 2278/2332) who thought it was worthwhile to immunise children cited protection from illness as their reason.

Those few mothers who thought it was *not* worthwhile to immunise children most often said they thought the vaccine would make the child sick or that they did not feel immunisation was necessary (Table 32).

Table 32 Why mothers felt immunisation was not worthwhile

Reasons	% mothers
Child gets sick from vaccine	42
Feel it is not necessary	40
Immunisation has no effect	8
Child may die	2
Hospital too far	4
Limbs stop working	3
N	55

Views about adverse effects of immunisation

Parents might avoid immunising their children because of fear of adverse effects, justified or not. In fact, very few mothers could mention any adverse effects of immunisation that they knew of.

Only 3% (81/2490) of mothers had heard of any adverse effect of immunisation. Most of the effects they mentioned were recognised adverse effects of immunisation, including fever and swelling or pain at the injection site. A few mentioned things that are not recognised adverse effects of immunisation, such as stomach problems and family planning. This last perception is a belief that vaccinations will make children sterile or cause them to have only female children in the future. Overall, 97% (2409/2490) of mothers mentioned no adverse effects of immunisation, 1% (32/2260) mentioned actual side effects, and 2% (42/2490) mentioned misconceptions about adverse effects.

The interviewers asked mothers who mentioned they had heard of adverse effects of immunisation where they heard this. Table 33 shows the main sources of information. In many cases, the mothers could not give a specific source for their information. Over half (43/80) said they had heard of the side effects from their family or neighbours.

Table 33: Where mothers had heard about adverse effects of immunisations

Source:	% mothers
Family, neighbours	55
Don't know/ myself	37
Electronic media (TV, radio)	3
No where	5
N	80

Information from the lady health worker

Table 34 Mother's recall about advice on immunisations given by LHWs

Advice given	% mothers
Nothing	78
Protects against illness	12
Important to immunise	10
Always complete the vaccination course	<1
Government order	<1
N	1403

Among the 60% (1447/2496) of mothers that reported an LHW visited their household, just 25% (326/1403) recalled that the LHW told them anything about immunisations. Those who recalled any information mentioned the LHW told them immunisations were to protect against illness and that it was important to immunise children (Table 34). Among *all* mothers (including those not visited by an LHW), only 15% had been given any advice about immunisations from an LHW.

The recall of mothers contrasts with the information from interviews with LHWs covering some of the sample communities (see below). The LHWs nearly all reported telling the mothers they visited about the benefits and importance of immunising children.

Decisions about immunisation for children

Some 84% (2064/2485) of mothers said they had discussed immunisation of children within the family.

Table 35 Mother's involvement in decisions about immunisation for the child (% children)

	Mother alone	Mother and father	Mother not involved
Jahania	44	48	9
Kabirwala	40	37	23
Khanewal	36	33	30
Mian Channu	57	22	21
Khanewal District	44	33	23

For each child under 60 months we asked the mother who had been involved in deciding about immunisation for that child. For 44% (1576/3473) of the children mothers alone had made the decision, for 33% (1187/3473) of children the mother and father decided together, and for 23% (710/3473) of children mothers were not involved in deciding about immunisations. Table 35 shows who was involved in decision making in each tehsil.

Measles immunisation

We collected additional information about measles immunisation specifically and analysed the variables related to the chances of children being immunised against measles. This supplements the analysis of the variables related to the risk of contracting measles (see Childhood Measles above), which showed the beneficial effects of measles immunisation on the risk of suffering measles.

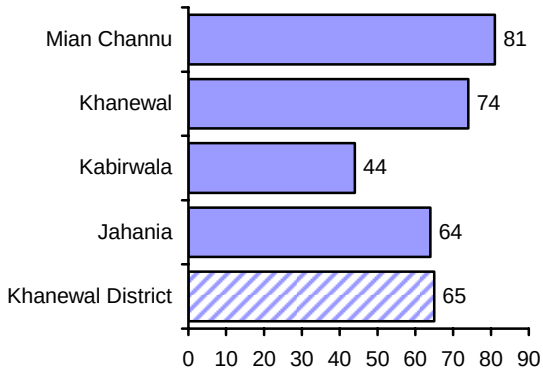

Figure 25 % children (12-23 months) who have received measles vaccine

Frequency of immunisation

As reported above, 65% (413/635) of children aged 12-23 months had received the measles vaccine, usually given at around nine months old. Figure 25 shows the variation in measles immunisation between the four tehsils.

Among children 10-59 months 70% (1920/2761) had received the measles vaccine.

Analysis of receiving measles vaccine

We collected information about a number of variables that might be associated (positively or negatively) with the chances of a child being immunised against measles. These are listed in Table 36. A number of these variables, examined separately, were associated with the chances of a child being immunised against measles. These are marked (*) in Table 36. We then undertook a multivariate analysis to examine the effects of each of these variables, taking into account the effects of the others. The model from the multivariate analysis is shown in Table 37.

Table 36 Variables potentially associated with the risk of measles in children

- Urban/rural location*
- Tehsil
- Education of the household head*
- Education of the mother*
- Household vulnerability*
- Sex of the child*
- Age of the child*
- Mother has heard about immunisations*
- Mother knows a vaccine-preventable illness*
- LHW told mother about vaccines*
- Mother thinks it worthwhile to immunise*
- Family have discussed immunisations*
- Government immunisation facility within 5Km*
- Vaccination team visits community*

* variables related to risk of measles in univariate analysis

Table 37 Model of effects of variables on the chance of having measles vaccine

	Crude OR	Weighted OR	95% CI of weighted OR
Urban location	1.34	1.63	1.19-2.23
Vulnerable house	0.48	0.62	0.50-0.78
Younger children	0.71	0.61	0.49-0.76
Educated mother	2.74	2.08	1.56-2.78
Mother knows vaccine benefit	2.92	1.92	1.51-2.45
LHW vaccine info	1.47	1.71	1.17-2.50
Discussed imms	4.73	3.33	2.49-4.44
Vaccination team visits community	1.63	3.42	1.93-6.04

OR=Odds Ratio, a measure of relative risk

Urban or rural location
Children in urban communities were more likely to have been immunised against measles than children in rural communities[11].

Household vulnerability
Children from vulnerable households were less likely to have been immunised than children from less vulnerable households[12].

[11] Weighted OR 1.63, 95% CI 1.19-2.23, 359/458 urban children had measles vaccine compared with 1561/2303 rural children

Age group
Younger children (10-36 months) were less likely to have been immunised than older children (37-59 months)[13].

Education of the mother
Children whose mothers had some education were twice as likely to have been immunised as children whose mothers had no education[14].

Knowledge about vaccine benefits
Children whose mothers could cite correctly at least one disease preventable by immunisation were twice as likely to have been immunised as children whose mothers did not have this knowledge[15].

Information from LHW
Children whose mothers had been visited by an LHW and who recalled being told about immunisations were more likely to have been immunised than children whose mothers had not received such information from an LHW[16].

Discussion in the family about immunisations
Children whose families had discussed about immunisation were three times more likely to have been immunised than children whose families had not discussed immunisation[17].

Vaccination team visiting community
Children from communities where a vaccination team had visited were three times more likely to have been vaccinated than children from communities not visited by a vaccination team[18].

[12] Weighted OR 0.62, 95% CI 0.50-0.78, 813/1326 children from vulnerable households had measles vaccine compared with 1075/1387 from less vulnerable households
[13] Weighted OR 0.61, 95% CI 0.49-0.76, 942/1432 children 10-36 months old had measles vaccine compared with 978/1326 children 37-59 months old
[14] Weighted OR 2.08, 95% CI 1.56-2.78, 651/764 children whose mother had some education had measles vaccine compared with 1268/1995 whose mother had no education
[15] Weighted OR 1.92, 95% CI 1.51-2.45, 1571/2059 children whose mothers could identify an illness prevented by immunisation had measles vaccine compared with 326/653 whose mothers did not have this knowledge
[16] Weighted OR 1.71, 95% CI 1.17-2.50, 301/360 children whose mothers recalled an LHW telling them about immunisations had measles vaccine compared with 1583/2349 whose mothers did not get such information from an LHW
[17] Weighted OR 3.33, 95% CI 2.49-4.44, 1753/2314 children whose family discussed immunisation had measles vaccine compared with 157/432 whose family did not discuss immunisation
[18] Weighted OR 3.42, 95% CI 1.93-6.04, 1836/2570 children from communities visited by a vaccination team had measles vaccine compared with 68/132 from communities not visited by a vaccination team

Table 38 Potential gains in increasing measles immunisation

Intervention	Proportion requiring intervention (%)	Weighted risk difference	95% CI weighted risk difference	Weighted gain per 1000 children
Focus on rural communities	82.3	0.037	0.016-0.058	31
Focus on vulnerable households	48.3	0.030	0.019-0.040	14
Educate mothers about immunisation benefit	24.5	0.207	0.153-0.261	51
Ensure LHWs tell mothers about immunisation	83.6	0.088	0.043-0.133	73
Encourage discussion about immunisation	16.1	0.313	0.243-0.384	50
Have visiting teams for all communities	19.9	0.301	0.169-0.434	60

Proportion requiring intervention means those who do not currently have the favourable condition, eg % children whose mothers do not know about immunisation preventable diseases

Potential population gains in measles immunisation

We can estimate the number of additional children who could be vaccinated as a result of different interventions, based on the model in Table 37 showing the increased chances of individual children being immunised if different variables could be changed.

The model of the potential population gains in measles immunisation is shown in Table 38. From this table, we can see that ensuring LHWs reach all mothers and tell them about immunisation, in a way that the mothers can understand and recall, could have the biggest impact and could increase the number of children who receive measles vaccine by 73 per thousand.

Useful gains could also be made by educating mothers about the benefits of immunisation (51 per thousand additional children immunised) and encouraging household discussion about immunisation (50 per thousand additional children immunised). Both of these interventions could perhaps be achieved by a visiting LHW, as well as by using other people and modalities to reach the mothers with information.

Having vaccination teams visiting every community could achieve an additional 60 children per thousand immunised but it could be an expensive option.

Lady health workers

The data collection teams interviewed 29 LHWs identified as visiting the sample communities, to collect information about their work, knowledge and views about childhood diarrhoea, ARI, measles, and immunisation.

Training

All of the LHWs interviewed had received some initial training to work as an LHW and over half (17/29) had received additional training after this. For 13/17 LHWs this additional training had been within the last year.

Work load

Most of the LHWs (20/28) covered more than 150 households in their catchment area. All (25/25) said they visited each household at least once a month.

Only 3/28 of the LHWs reported having difficulty visiting the households in their catchment area and their suggestions for helping them to get to the households included to increase community support (2/29), to have more medicines and equipment available (1/29), and to provide transport (1/29).

Supervision

Most of the LHWs reported they were visited by a supervisor once a month or less frequently (22/29), 4/29 reported they were visited more than once a month, and 3/29 reported they were never visited by a supervisor.

Knowledge and attitudes about immunisation

Virtually all the LHWs (28/29) could correctly identify at least one illness prevented by immunisation. About a third of them (11/29) had heard something about adverse effects of immunisation. Of those who had heard about adverse effects 8/11 mentioned actual side effects, 2/11 mentioned misconceptions about side effects, and 1/11 believed immunisation had no effect. The LHWs' sources of information about adverse effects of immunisation are shown in Table 39.

Table 39 Where LHWs heard about adverse effects of immunisation

	No of LHWs
Family, neighbours, friends	3/11
Doctor/health worker	3/11
During training	3/11
During visits (from parents)	2/11

Table 40 Why children are not always immunised: LHW views

Reason	No. responses
Carelessness	12
Family problem/migration	5
No reason	4
Team does not come	3
Lack of awareness	3
Not allowed	2
Don't believe in it	2
Fear of side effects	1
No time / no one to take child	1

Most LHWs said they provided their clients (mothers) with information about the importance and benefits of immunisation (24/29), 4/29 said they told mothers about the scheduling of immunisations, and only one LHW said she did not give mothers any information about immunisations. This reported passing on of information to mothers was not reflected in interviews with mothers visited by LHWs, few of whom could recall the LHW telling them anything about immunisations.

LHWs most commonly (12/29) gave "carelessness" as the reason for children in their communities not being immunised. They also mentioned family problems or migration (5/29). Other reasons they cited are shown in Table 40.

Table 41 Suggestions of LHWs to ensure all children are immunised

Suggestion	No. responses
Give information/ increase awareness	10
Mobile teams	6
Facility nearby/transport	4
More staff/vaccinators/train LHWs	2
Ensure vaccine availability	2
No suggestion	2

The most common suggestion from the LHWs to ensure that all children got immunised was to provide information and raise awareness about the issue (10/24). Other suggestions are shown in Table 41.

Knowledge and attitudes about diarrhoea

Virtually all the LHWs could correctly state at least one cause of childhood diarrhoea. All of them said a child should be given more fluids during an episode of diarrhoea and 26/29 said a child should be given the same or more food. Just 3/29 LHWs said a child should be given less or no food during diarrhoea.

Table 42 Advice reportedly given by LHWs about diarrhoea prevention

Advice	No of responses
Good hygiene and cleanliness	26
Good nutrition	9
Give more fluids/ ORS	5

All the LHWs reported they gave advice to mothers and families about preventing and treating childhood diarrhoea (Tables 42 and 43). Most (26/29) reported they gave advice about good hygiene practices and cleanliness to prevent diarrhoea and (28/29) about giving more fluids and ORS to treat diarrhoea. This is in contrast to the reports from mothers visited by LHWs (see Childhood Diarrhoea above), few of whom could recall the LHW telling them anything about diarrhoea prevention or management.

Table 43 Advice reportedly given by LHWs about diarrhoea treatment

Reason	No of responses
Give more fluids/ ORS	28
Good nutrition/food	8
Contact doctor	8
Hygiene/cleanliness	2

However, when directly asked, most of the LHWs (22/29) said children with diarrhoea *should* be given anti-diarrhoeal drugs, although these can in fact be dangerous in young children. They presumably pass on this misconception to the mothers they visit.

Knowledge and attitudes of LHWs about ARI

Nearly all the LHWs (28/29) could mention some correct advice about recognising ARI in children.

Most of the LHWs reported that they advised mothers to treat a child with ARI by giving medicines (22/28) or taking the child to a doctor, or consulting a doctor (16/28) (Table 44)

Table 44 Advice reportedly given by LHWs about ARI treatment

Advice	No of responses
Give medicines	22
Take to doctor or contact doctor	16
Protect from cold	3
Breast feed	1
Feed eggs and honey/hot foods	1

Again, the report from the LHWs is in contrast to the information from mothers visited by LHWs, few of whom could recall the LHW telling them anything about recognition or treatment of ARI.

Public satisfaction with basic services

In a general section of the household interview we asked households about their satisfaction with a range of basic public services provided by the government. In some cases, household respondents said that they had no such service available to them. This same information was also collected as part of the 2004/05 national social audit, so comparison with national and provincial figures is possible.

As mentioned in the report of the national social audit, isolated satisfaction ratings of public services must be interpreted with caution, as they may be influenced by many factors other than the quality of a service. However, they do provide some guide to how citizens view the public services supposed to be available to them. It can be useful to track satisfaction ratings over time, but again care must be taken not to over-interpret changes, especially small changes, which may even be due to chance. In the focus districts, we have the opportunity to compare satisfaction with a range of public services in different parts of the district.

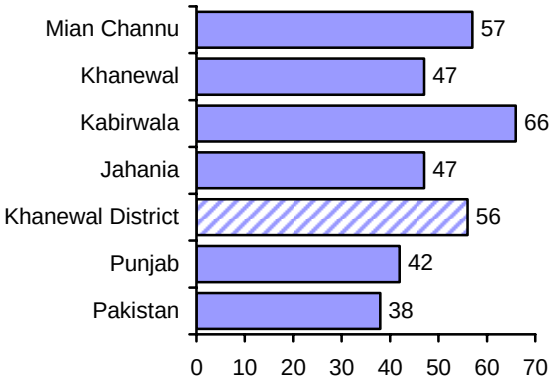

Figure 26 % households satisfied with roads

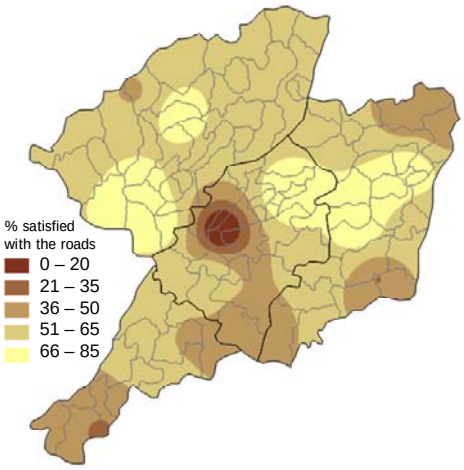

Figure 27 % households satisfied with roads (map)

Roads

Across the district, 56% (1334/2383) were satisfied with the roads in their area. Figure 26 includes a comparison with the findings about satisfaction with roads at national and provincial levels.

The map in Figure 27 shows the variation across the district in household satisfaction with roads.

Most (90%; 2212/2383) households across the district considered they had access to roads in their area. This is shown by tehsil and in comparison with national and provincial figures in Table 45.

Table 45. % households reporting access to roads and public transport

	Roads	Public transport
Jahania	98	100
Kabirwala	93	100
Khanewal	74	95
Mian Channu	99	100
District Khanewal	90	99
Punjab	85	95
Pakistan	92	93

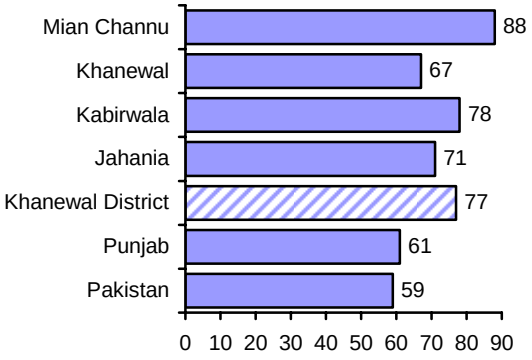

Figure 28 % households satisfied with public transport

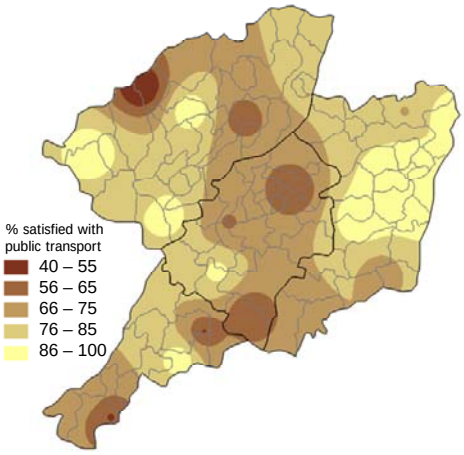

Figure 29 % households satisfied with public transport (map)

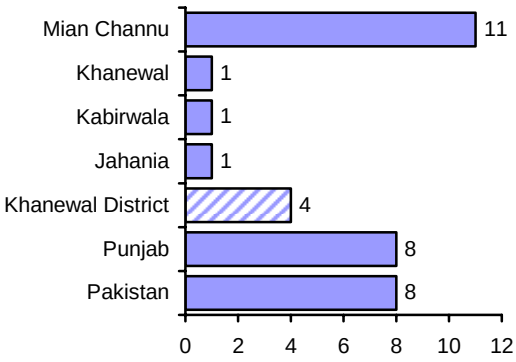

Figure 30 % households satisfied with garbage disposal

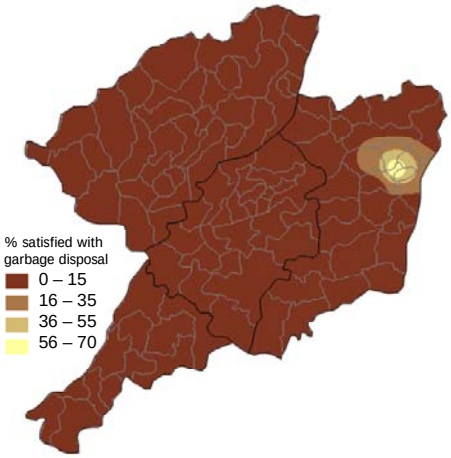

Figure 31 % households satisfied with garbage disposal (map)

Public transport

Across the district, 77% (1852/2385) were satisfied with the public transport in their area. Figure 28 includes a comparison with the findings about satisfaction with public transport at national and provincial levels.

The map in Figure 29 shows the variation across the district in the proportion of households satisfied with public transport.

Almost all (99%; 2361/2385) of households across the district considered they had access to public transport in their area. This is shown by tehsil and in comparison with national and provincial figures in Table 45.

Government garbage disposal

Across the district, only 4% (99/2389) of households were satisfied with the government garbage disposal in their community. Figure 30 includes a comparison with the findings about satisfaction with garbage disposal at national and provincial levels. Satisfaction with garbage disposal services in Khanewal, except in Mian Channu tehsil, is rather low in comparison with Punjab as a province and with Pakistan overall.

The map in Figure 31 shows the variation across the district in household satisfaction with government garbage disposal services. Satisfaction is confined to the urban area in Mian Channu.

Some 10% (273/2389) of households across the district considered they had access to garbage disposal in their community. This is shown by tehsil and in comparison with national and provincial figures in Table 46.

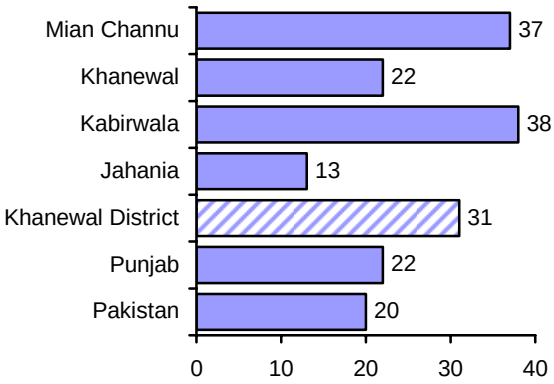

Figure 32 % households satisfied with sewerage services

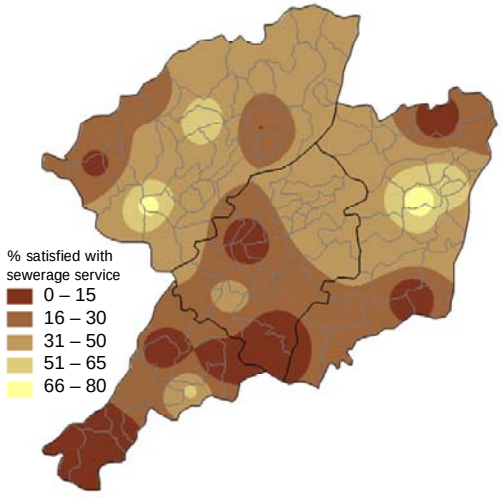

Figure 33 % households satisfied with sewerage services (map)

Table 46. % households reporting access to garbage, sewerage, and water services

	Garbage	Sewerage	Water
Jahania	17	38	0
Kabirwala	5	71	15
Khanewal	2	51	0
Mian Channu	19	77	13
Khanewal District	10	63	9
Punjab	72	70	34
Pakistan	64	53	44

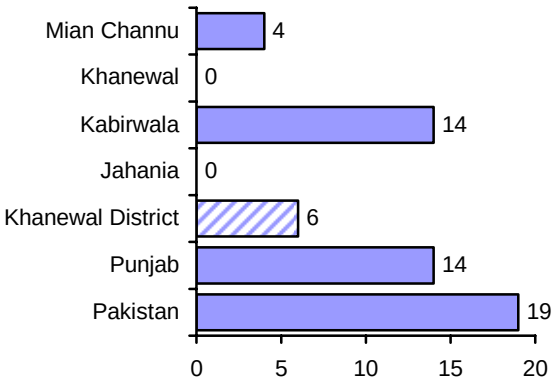

Figure 34 % households satisfied with government water supply

Government sewerage services

Across the district, 31% (715/2384) of households were satisfied with the government sewerage services in their community. Figure 32 includes a comparison with the findings about satisfaction with sewerage services at national and provincial levels. The overall satisfaction with government sewerage services is higher in Khanewal than across Punjab or nationally, but there is considerable variation between tehsils.

The map in Figure 33 shows the variation across the district in household satisfaction with government sewerage services.

Some 63% (1476/2384) of households across the district considered they had access to sewerage services in their community. This is shown by tehsil and in comparison with national and provincial figures in Table 46.

Government water supply

Across the district, only 6% (133/2398) were satisfied with the government water supply in their area. Figure 34 includes a comparison with the findings about satisfaction with government water supply at national and provincial levels. Household satisfaction with government water supply in Khanewal was apparently lower than for Punjab province and for Pakistan as a whole. But this is largely because few households actually had access to a *government* water supply (see below).

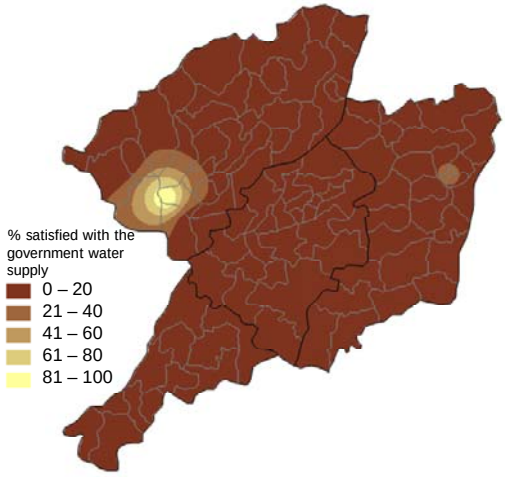

Figure 35 % households satisfied with government water supply (map)

The map in Figure 35 shows the variation across the district in the proportion of households satisfied with the government water supply. Satisfaction with the government water supply is confined to one area in Kabirwala tehsil.

Only 9% (205/2398) of households across the district considered they had access to a government water supply in their area. This is shown by tehsil and in comparison with national and provincial figures in Table 46. Most households make use of a private source of underground water, for example through a household pump.

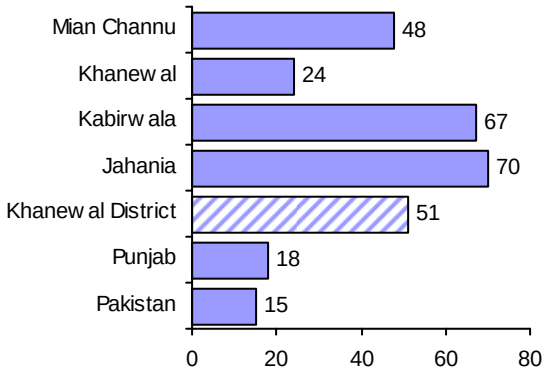

Figure 36 % households satisfied with agriculture services

Agriculture services

Across the district, 51% (1041/1910) of households were satisfied with the agriculture services in their area. Figure 36 includes a comparison with the findings about satisfaction with agriculture services at national and provincial levels. The satisfaction with agriculture services in Khanewal is considerably higher than in Punjab province or in Pakistan as a whole. This is partly because of the higher access to agriculture services in this agricultural district (see below).

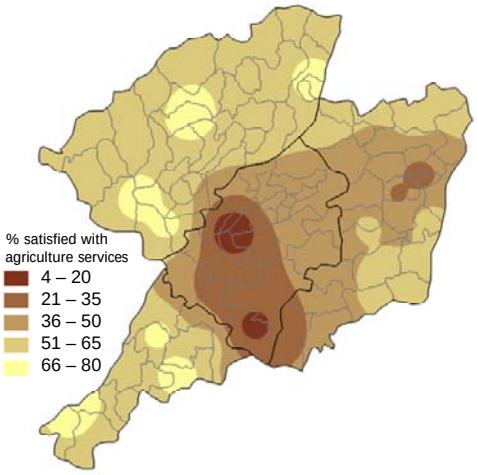

Figure 37 % households satisfied with agriculture services (map)

The map in Figure 37 shows the variation across the district in the proportion of households satisfied with government agriculture services.

Some 73% (1493/1910) of households across the district considered they had access to agriculture services in their area. This is shown by tehsil and in comparison with national and provincial figures in Table 47.

Table 47. % households reporting access to agricultural, education and health services

	Agriculture	Education	Health
Jahania	91	100	87
Kabirwala	83	99	96
Khanewal	41	94	84
Mian Channu	89	100	98
Khanewal District	73	98	92
Punjab	56	96	81
Pakistan	49	96	78

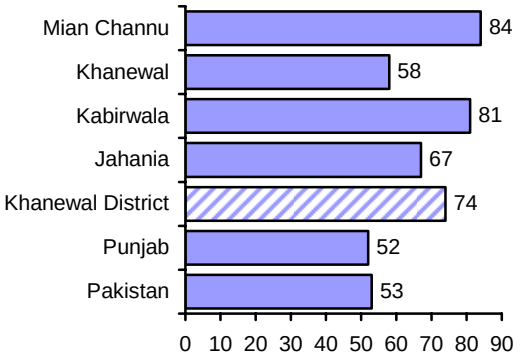

Figure 38 % households satisfied with government education services

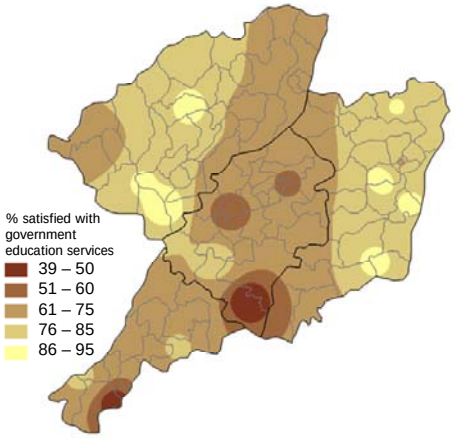

Figure 39 % households satisfied with government education services (map)

Education

Across the district, 74% (1781/2375) of households were satisfied with the government education service in their area. Figure 38 includes a comparison with the findings about satisfaction with the government education service at national and provincial levels. The satisfaction with government education services in Khanewal compares quite favourably with the figures for Punjab province and for Pakistan as a whole.

The map in Figure 39 shows the variation across the district in proportion of households satisfied with the government education services in their area.

Virtually all (98%; 2342/2375) households across the district considered they had access to a government education service in their area. This is shown by tehsil and in comparison with national and provincial figures in Table 47.

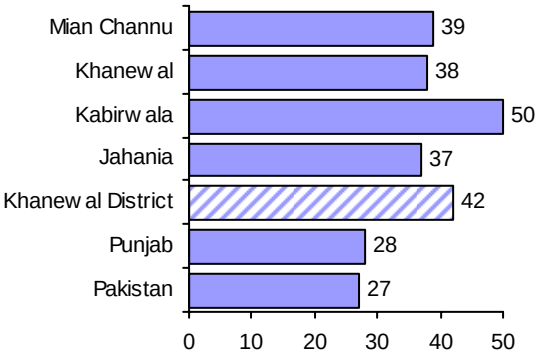

Figure 40 % households satisfied with govt health services

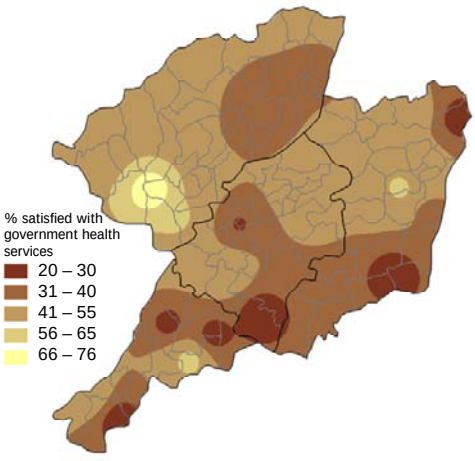

Figure 41 % households satisfied with govt health services (map)

Health

Across the district, 42% (981/2347) of households were satisfied with the government health services in their area. Figure 40 includes a comparison with the findings about satisfaction with the government health services at national and provincial levels. Again, satisfaction with government health services in Khanewal compares favourably with the satisfaction across Punjab province and in Pakistan as a whole.

The map in Figure 41 shows the variation across the district in the proportion of households satisfied with the government health services in their area

Most (92%; 2173/2347) households across the district considered they had access to government health services in their area. This is shown by tehsil and in comparison with national and provincial figures in Table 47.

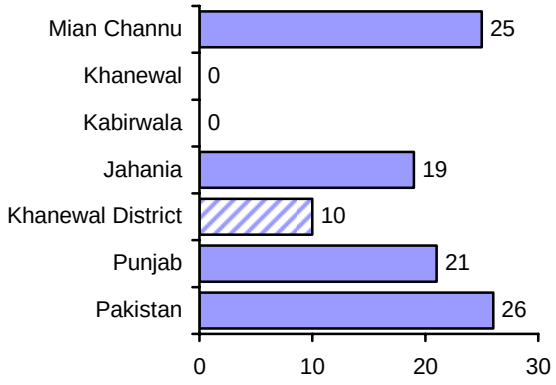

Figure 42 % households satisfied with gas supply

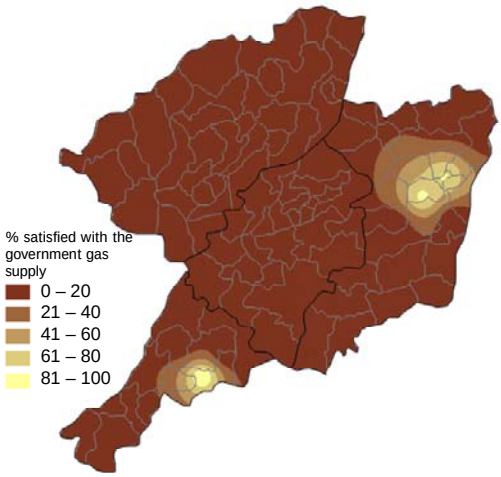

Figure 43 % households satisfied with gas supply (map)

Table 48. % households reporting access to gas and electricity services

	Gas	Electricity
Jahania	20	100
Kabirwala	0	87
Khanewal	0	93
Mian Channu	29	99
Khanewal District	11	94
Punjab	25	95
Pakistan	30	93

Gas supply

Across the district, 10% (282/2397) of households were satisfied with the gas supply in their area. Figure 42 includes a comparison with the findings about satisfaction with gas supply at national and provincial levels. The satisfaction with gas supply in Khanewal was lower than for Punjab or for Pakistan as a whole. This is partly because two of the tehsils have no access to a gas supply.

The map in Figure 43 shows the variation across the district in the proportion of households satisfied with the gas supply. Satisfaction is confined to urban areas in Mian Channu and Jahania tehsils.

Only 11% (322/2397) of households across the district reported they had a gas supply. This is shown by tehsil and in comparison with national and provincial figures in Table 48. Of the four tehsils only Jahania and Mian Channu had access to a gas supply.

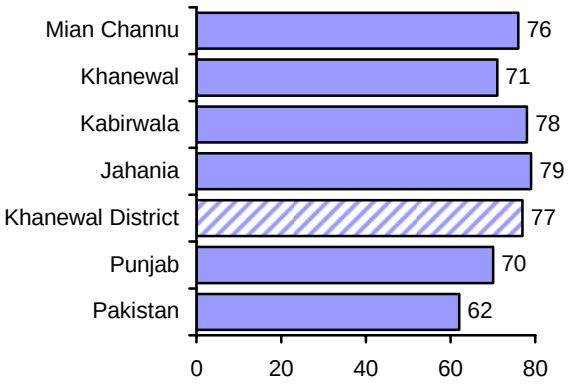

Figure 44 % households satisfied with electricity supply

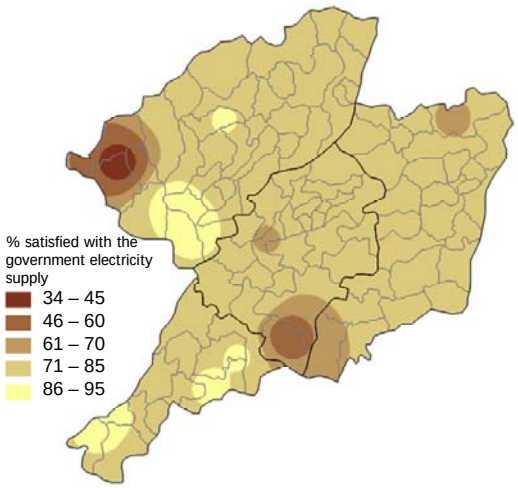

Figure 45 % households satisfied with electricity supply (map)

Electricity supply

Across the district, 77% (1873/2394) of households were satisfied with the electricity supply in their area. Figure 44 includes a comparison with the findings about satisfaction with electricity supply at national and provincial levels. The satisfaction with electricity in Khanewal is similar to that for Punjab as a province.

The map in Figure 45 shows the variation across the district in the proportion of households satisfied with the government electricity supply.

Most (94%; 2270/2394) households across the district reported they had an electricity supply. This is shown by tehsil and in comparison with national and provincial figures in Table 48.

Commentary

This report presents the main findings of the social audit in Khanewal. It is by no means the end of the process. It will hopefully be a useful reference. But the main work of disseminating the findings and making use of them to support evidence-based planning is only just beginning. Over the coming months the social audit findings will be presented and discussed in many settings within the district, both within and outside government.

During this process many people will no doubt examine the findings closely and look beyond what is included in this report, relating the findings to what they know about the district and tehsil settings and looking for feasible ways to improve outcomes. Some findings bear highlighting even at this stage.

Childhood diarrhoea

The rate of diarrhoea – 29% of children under five years old with diarrhoea in the last two weeks – is quite high by international standards. In many studies the quality of drinking water is found to be a factor, with children whose households do not have a protected water source having a higher rate of diarrhoea. In Khanewal, almost all households have a water source that is classified as 'protected' as it is underground water. So it was not possible to examine the effect of water source protection on the risk of diarrhoea.

Perhaps not surprisingly, children from households with a latrine had a lower risk of diarrhoea but, importantly, this effect was only seen among those children whose mothers had some education. Simply getting a latrine into households is not all that is required; they have to be kept clean and children have to be taught how to use them properly.

Coming to treatment of diarrhoea, it is encouraging that most mothers know (and believe) children with diarrhoea should be given extra fluids. There is still work to be done to convince them all and to help them do it in practice. Of concern is the high rate of use of anti-diarrhoea medicines. It is not good practice to use these for young children and it can be dangerous. But many LHWs believed in the use of anti-diarrhoea medicines for children and other health practitioners may also be prescribing them.

By far the most popular source of treatment for children with diarrhoea is unqualified practitioners (51%), while only 4% of children with diarrhoea were taken to a government facility. There is evidence to suggest that the treatment at government facilities might be more appropriate: they gave more ORS than either private or unqualified practitioners. Yet in most cases children are being treated by unregulated unqualified practitioners.

Childhood acute respiratory infections (ARI)

Evidence from the literature suggests that smoke in the household increases the risk of ARI in children but we were unable to demonstrate this in Khanewal. We found a beneficial effect of household heating, even though most of this was by wood burning heaters.

Children with ARI do need medical attention so it was encouraging to see that only 15% were not taken anywhere for treatment. Once again, the usual choice of parents was unqualified practitioners, and only 4% of children with ARI were taken to a government facility for treatment. The easy access to unqualified practitioners and the concerns about lack of medicines in government facilities seem to be factors in the decision of where to take children for treatment.

Childhood measles

Measles is quite common in Khanewal: 19% of children aged 10-59 months old have had measles, even excluding those cases under 10 months old (which may not be measles). Taking other factors into account, we were able to show that children who were not immunised had nearly twice the risk of measles compared with immunised children. This recent information specifically from Khanewal district is useful to give to parents deciding whether to immunise their children. We were also able to show that 24 per thousand children in Khanewal could be protected from measles if all children were immunised. Actually, this could be an underestimate because once nearly all children are immunised there is a "herd immunity" effect further reducing the risk of measles, even in non-immunised children.

Childhood immunisations

Khanewal is some way from universal immunisation. Most (81%) children receive BCG at birth, but the rates

of immunisation fall off afterwards, so that only two thirds (67%) of children receive the full course of DPT injections, and only two thirds (65%) receive measles vaccine.

Some of the discussions held with parents in focus groups help to explain reasons why children are not immunised and could be useful inputs into an advocacy campaign, together with the evidence about the beneficial effects of measles immunisation. The analysis of variables related to the chances of a child being immunised against measles offers a number of options for interventions that could help to increase the number of immunised children. Which of these options might be feasible in Khanewal will be a subject for discussion over the coming months. Some interventions would be much cheaper than others.

The role of lady health workers (LHWs)

The coverage of mothers by LHWs in Khanewal is quite good: 60% of mothers reported they were visited by an LHW. However, it is striking that most mothers visited by an LHW did not recall being told anything about prevention or treatment of diarrhoea in children, recognition and treatment of ARIs in children, or immunisations. On the other hand, nearly all the LHWs we interviewed said they did tell mothers about these things. The reasons for this contrast need to be explored and perhaps LHWs need to be equipped with different methods of getting over information to mothers. Information from LHWs can clearly have an impact; recall of information about immunisations from an LHW was a variable that increased the chances of a child being immunised against measles.

Satisfaction with a range of government services

We asked households a general question about their satisfaction (and access) to a range of basic services, provided from different levels of government. While we caution against over-interpretation of these isolated satisfaction ratings, they do provide a general guide. Khanewal is doing relatively well for public satisfaction with some services, such as health and education, in comparison with Punjab as a whole, but less well with services such as garbage disposal. These ratings can provide an ongoing feedback from citizens, but bearing in mind their limitations.

Annexes

1. Members of Khanewal district social audit steering group
2. Members of Khanewal district social audit sub-technical group
3. Terms of reference of social audit national core group
4. CIET methods
5. Main indicators from household interviews, by tehsil
6. Main indicators from community profiles and LHW interviews
7. Main themes from focus group discussions

Annex 1

Members of Khanewal social audit district steering group

1. Mr Ahmed Yar Hiraj, Zila Nazim, Khanewal
2. Mr Pir Ahmed Nadeem Bodla, District Nayeb Nazim, Khanewal
3. Mr Muhammad Khan Khicchi, DCO, Khanewal
4. Mr Mirza Muhammad Akram, EDO Community Development, Khanewal
5. Mr M Ammer Saleemi, EDO Finance & Planning, Khanewal
6. Mr Dr Farkhnad Shakeel Mehmood, EDO Education, Khanewal
7. Mr Dr Muhammad Tariq Gelani, EDO Health, Khanewal
8. Mr Muhammad Saleem Nihang, EDO Agriculture, Khanewal
9. Mr Khalid Hasan Durrani, Tehsil Municipal Officer, Khanewal
10. Mr Mehr Manzoor Hussain, Tehsil Municipal Officer, Kabirwala
11. Mr Muhammad Anwar Gill, Tehsil Municipal Officer, Jehania
12. Mr Muhammad Naseem Akhtar Khan, Tehsil Municipal Officer, Mianchannu
13. Mr Haji Ataurrehman, Member District Assembly, Khanewal
14. Mr Javed Rehmat, Member District Assembly, Khanewal
15. Mr Rao Muhammad Arif, Member District Assembly, Khanewal
16. Mr Qari Muhammad Yousaf, Member District Assembly, Khanewal
17. Mr Dr Qaiser Javed, PLYC, Khanewal
18. Ms Farhana Firdous, Member District Assembly, Khanewal
19. Ms Bismillah Erum, Member District Assembly, Khanewal
20. Ms Ghazala Jabeen, Kabirwala

Annex 2

Members of Khanewal social audit sub-technical group

1. Mirza Muhammad Akram, EDO CD Khanewal
2. Mr Dr Muhammad Tariq Gelani, EDO Health, Khanewal
3. Mr M Ammer Saleemi, EDO F&P, Khanewal
4. Mr Masood Kamal Akhtar, DO Planning, Khanewal
5. Mr Khalid Hasan Durrani, TMO, Khanewal
6. Mr Naseem Akhtar Khan, TMO, Mianchannu
7. Mr Shafeequrrehman, TOP, Mianchannu
8. Ms Bismillah Erum, Khanewal
9. Ms Farhana Firdous, Khanewal
10. Ms Kanwal Shamim advocate, Khanewal
11. Mr Naeem Tariq, Jehanian
12. Mr Dr Muhammad Aslam Jehanian
13. Mr Dr Qaiser Javed, Chairman PLYC
14. Mr Rao M Arif, Chairman The National Foundation

Annex 3: Terms of reference of social audit national core group

Membership

The membership will include:
- From each focus district: the zila nazim or representative and the DCO or district focal person for the social audit
- The social audit focal point from each provincial department of Local Government and Rural Development
- The CIET district coordinator from each focus district, CIET provincial coordinators and national coordinator, and representation from the CIET liaison office in Islamabad
- A representative from NRB
- Other members as may be co-opted for specific purposes from time to time

The group will be chaired by one of the members from the focus districts, to be elected by the core group members. The group members will elect a chair every six months. CIET will provide the secretariat for the group.

Purposes of the group

The intention of the national core group is to share experiences of the district social audit scheme between the districts, identifying what has worked especially well, so that a tool-box for district social audit schemes in other districts can be developed.

The group will:
- develop means of *horizontal connectivity*: methods of sharing learning between the participating districts, both in terms of how best to apply the social audit effectively and in terms of findings and action plans developed as a result. These might include email listserves, a newsletter, shared reports, and meetings.
- explore means of increasing *vertical connectivity*: identifying common issues arising from the social audit to bring to the attention of the NRB; developing the role of the provincial LGRD departments in supporting the district social audit schemes; and findings ways to involve sub-district governments and civil society in social audit.
- provide a forum for discussing and agreeing matters of common interest, such as the focus of each social audit cycle and methods of publicizing the findings
- act as a point of reference for other districts that wish to develop district social audit schemes

Meetings

Meetings will be held six monthly. The venue for each meeting will be one of the participating districts, to be agreed in the preceding meeting.

The Minutes of the meetings will be circulated to the members and to the Chief Secretary, the head of the Planning and Development, and the head of the Local Government department in each province.

In between physical meetings, matters of interest or importance to the Group will be circulated for comment and discussion, mostly electronically.

Annex 4: CIET methods

Rooted in modern epidemiology and participatory research techniques, CIET methods have been applied in health[19], education[20], water and sanitation[21], land mines[22], economic sanctions[23], prevention of sexual violence[24] and the impact of structural adjustment measures on the vulnerable. The method has been used to measure impact, coverage and cost in the fields of environment[25], urban transport[26], agricultural extension[27] and judiciary[28]. It has proved useful for community-designed strategies to combat corruption in the public services in several countries[29][30]. CIET processes have been established in over 40 countries during the last decade.

A representative sample of communities is selected to represent conditions across the entire country. In these sentinel communities, *all* public services to be included in the audit are reviewed. This allows for conclusions not just on the performance of each department, but on the performance of the services taken together. In each sentinel community, several types of interaction are developed with the community, including a service delivery household survey. The fact that the public services are reviewed in the same sentinel communities as the household survey and focus groups means that these different types of information – community and service, quantitative and qualitative – can be combined economically and rapidly.

There are several specific steps in the social audit that examine and strengthen community participation:
- the sample is carefully chosen to cover all types of community; information they provide includes their experience with services, their satisfaction and willingness to pay;
- community members and service providers participate in the fact finding;
- community members and service providers participate in analysis of the evidence, adding their experience and ideas to formulate local solutions;
- the workshopping process allows both one-to-one interaction and group discussion of the evidence and the ways forward; and
- the reiterative nature of the process helps to build community capacities and confidence.

[19] Cockcroft A. Performance and Perceptions of Health and Agriculture Services in Uganda. CIETinternational/World Bank/UNICEF/CIDA: Washington, D.C., December 1996.
[20] CIETinternational. Gender gap in primary education. Secretary Planning & Development Department, Government of Sindh, Pakistan/UNICEF Karachi 1996.
[21] Andersson N, Villegas A, Paredes S. Micro-regional Planning. in Four Essays on Evidence-based Planning . EDI/World Bank, 1995.
[22] Andersson N, da Sousa C, Paredes C. Social costs of land mines in four countries: Afghanistan, Bosnia, Cambodia and Mozambique. *British Medical Journal.* 1995;311:718-721.
[23] Andersson N. The social conditions for health in Serbia. CIETinternational: New York. 1994
[24] Andersson, N., Mhatre S, Mqotsi N., Penderis, M. Prevention of sexual violence - a social audit of the role of the police in the jurisdiction of Johannesburg's Southern Metropolitan Local Council. Johannesburg, October 1998.
[25] Arostegui J and Andersson N. Nicaragua: Impact of the National Environmental Program. EDI/World Bank, December 1995.
[26] Arostegui J and Andersson N. Results-oriented management of Managua urban public transport. EDI/World Bank December 1995.
[27] Cockcroft A. Performance and Perceptions of Health and Agriculture Services in Uganda. CIETinternational/World Bank/UNICEF/CIDA: Washington, D.C., December 1996.
[28] Massoud N. Measuring client satisfaction and expectations: The Case of the Mali Public Service. EDI/World Bank. September 1995.
[29] Cockcroft A. Tanzania Service Delivery Survey: Corruption in the Police, Judiciary, Revenue & Lands Service. EDI/World Bank July 1996.
[30] Cockcroft A, Legorreta J. National Integrity Survey, Uganda. Inspectorate of Government, Uganda & CIETinternational, August 1998.

Taken together with hard evidence of what needs to change and how it should be changed, this participation can produce a radical change in public services, increasing accountability and providing the public with value for money.

In addition to a detailed review of public services, and interviews with service providers, community-based social audits collect information on users and non-users of a service from the standpoint of the community. A community-based audit compares users and non users in the same community, and it can compare entire communities that benefit form a service with entire communities that do not benefit. This is a strong analytical position for understanding programme performance. Since it places community dynamics at the centre of the audit, it is very easy to answer questions about who the programme leaves out and why they are left out, something that service-based approaches cannot do easily. It also allows for evaluation of 'knock-on' or secondary effects, for example, when some women in a community are exposed to programme content and they relay the benefits to others in some way or another.

Analysis

The most basic level of analysis is simply a description of the levels of the different indicators of service performance. However, this does not in itself contribute to changing the situation. Formal epidemiological analysis probes behind the indicators to reach a deeper understanding of what is happening and how it be changed to improve outcomes for the well-being of the population in question.

The CIET community-based cross-design methods focus principally on what is working (the proof that something is not working requires considerably bigger sample sizes). Even when a relationship is found between a particular intervention or service and a positive outcome, in order to be sure it is the intervention that produces the positive outcome, it is necessary to exclude other possible factors as explanations of the outcome. This leads to the development of several higher-level indicators, each with a purpose in planning.

Modern epidemiological methods, for example the Mantel-Haenszel[31] procedure and the Mantel-Extension[32] test for trend, widely used for studying causes in the medical sphere, have been adapted to look behind the indicators in management in other sectors, including justice, transport, environment, customs services, water, sanitation, agriculture, food security and education. These techniques allow detailed analysis of factors that contribute to impact at national and sub-national levels. They can be used in analysis of data from social audits.

GIS component: maps for planning

CIET mapping techniques are an important means of displaying findings for planners and policy makers. The CIETmap geographic information process is designed for communication and modelling of epidemiological data for planning.[33] It represents the spatial variations of indicators but it can also model the effects of interventions, programme changes, and time-series data.

[31]Mantel N, Haenszel W. Statistical aspects of the analysis of data from retrospective studies of disease. *J Natl Cancer Inst* 1959;22:719_748.
[32]Mantel N. Chi_square tests with one degree of freedom: extensions of the Mantel Haenszel procedure. *J Amer Stat Assoc* 1963;58:690_700.
[33] Andersson N., Mitchell S. CIETmap: free GIS and epidemiology software from the CIET group, helping to build the community voice into planning. World Congress of Epidemiology, Montreal, Canada, 19 August, 2002.

Sample data collected in the field are linked to a set of sentinel sites on the map and interpolated to create a raster surface of the study area. An adjustment is made to the interpolation in order to account for the population weighting of the sites. This transforms the map into one which represents proportion of the population rather than simply geographic area. A colour palette is then applied to show the gradient changes between classes of data, with darker colours representing high values and lighter colours representing low values.

CIET raster maps are interpreted much like a standard weather map where regional trends are more accurate than the exact location of any contour gradient. However, since they are population weighted, if 30% of the map falls within a certain class range then 30% of the population is in that range.

CIETmaps can be used to measure community participation and coverage of services in different sectors including social welfare, health, education, sports, art and culture. Each level of CIET indicators can be displayed on the maps in order to show access to services, the current effect of services on the community, and the possible effects of any programme change or reallocation.

For example, a level 0 ‘coverage’ map can show which households have access to, say, government health services and which do not. This can be helpful in determining where the gaps of services occur based upon community reported needs.

This map can then be compared with the coverage with roads of different types in different areas. Satisfaction is partly a function of expectations. The level 0 maps can demonstrate regional variations of satisfaction or access to services which may be important to consider for any reallocation or reform of services.

CIETmaps can then be used to determine how any projected road construction might change overall satisfaction with this service. These ‘gains’ can be clearly modelled on the maps through a ‘morph’ series. The morph series is so named due to the visible change that occurs in the indicator on the map, much like a series of steps in an animation. For example, the morph series may show a significant increase in user satisfaction if ‘Reform A’ was implemented. The Morph series not only shows how much of an effect there may be, but also where the effect takes place. Morph series maps can also be used to compare interventions, such as the effect of Reform A vs. Reform B, or the effect of A and B together.

Annex 5: Main indicators from household interviews

Table 1. General household indicators by tehsil

Indicator	DISTRICT % wt (unwt) 95% CI	Based on	JAHANIA % unwt 95% CI	Based on	KABIRWALA % unwt 95% CI	Based on	KHANEWAL % unwt 95% CI	Based on	MIAN CHANNU % unwt 95% CI	Based on
Household demographic and socio-economic characteristics										
Total households interviewed	72.23(72.09) 70.70 - 73.77	2400	72.27 68.92 - 75.62	516	80.93 78.31 - 83.54	734	70.09 66.29 - 73.88	410	74.97 73.48 - 76.45	740
Total population covered		17316		3760		5060		3031		5465
Mean household size	7.2 7.0-7.4	2400	7.2 7.0-7.5	516	6.8 6.7-7.0	734	7.3 7.1-7.6	410	7.3 7.1-7.6	740
Households where a women responded	87.84(88.37) 86.51 - 89.17	2389	90.12 87.44-92.79	516	85.11 82.46-87.76	732	85.85 82.36-89.35	410	91.76 89.71-93.81	740
Households with a male head	94.39(94.42) 93.45 - 95.33	2400	94.96 92.98 - 96.95	516	95.37 93.78 - 96.96	734	94.15 91.75 - 96.54	410	93.24 91.37 - 95.12	740
Household head with any education	51.19(51.77) 49.17 - 53.21	2397	50.87 46.46-55.29	515	52.60 48.91-56.28	732	44.39 39.46-49.32	410	55.68 52.03-59.32	740
Houses with poor roof construction	45.16(44.7) 43.15 - 47.18	2385	42.55 38.16 - 46.94	510	57.61 53.96 - 61.27	729	41.71 36.81 - 46.60	410	35.05 31.54 - 38.57	736
Houses with >4 people/room	37.41(36.64) 35.46 - 39.37	2396	34.69 30.49 - 38.89	516	37.24 33.68 - 40.81	733	42.79 37.87 - 47.70	409	34.01 30.53 - 37.50	738
Main breadwinner unemployed or unskilled	60.67(60.39) 58.69 - 62.66	2378	60.62 56.30 - 64.95	513	60.39 56.76 - 64.01	727	63.64 58.84 - 68.43	407	58.41 54.77 - 62.05	731
Vulnerable households	47.81(47.12) 45.78 - 49.85	2360	44.77 40.35 - 49.20	507	53.74 50.03 - 57.45	722	49.26 44.27 - 54.25	406	40.97 37.32 - 44.61	725
Very vulnerable households	14.75(14.32) 13.29 - 16.20	2360	12.62 9.63 - 15.61	507	17.59 14.74 - 20.44	722	15.76 12.10 - 19.43	406	11.45 9.06 - 13.83	725
General opinion about services										
Roads		*n=2383*		*n=508*		*n=730*		*n=407*		*n=738*
Satisfied	56.39(55.98) 54.37 - 58.40	1334	46.85 42.41 - 51.29	238	66.16 62.66 - 69.67	483	47.42 42.45 - 52.39	193	56.91 53.27 - 60.55	420
Not satisfied	34.38(36.84) 32.45 - 36.31	878	50.98 46.54 - 55.43	259	26.58 23.30 - 29.85	194	28.01 23.52 - 32.50	114	42.14 38.51 - 45.77	311
No service	9.23(7.18) 8.05 - 10.42	171	2.17 0.80 - 3.53	11	7.26 5.31 - 9.21	53	24.57 20.26 - 28.88	100	0.95 0.18 - 1.72	7
Public transport		*n=2385*		*n=515*		*n=729*		*n=407*		*n=734*
Satisfied	77.18(77.65) 75.47 - 78.88	1852	71.26 67.26 - 75.27	367	77.78 74.69 - 80.86	567	66.83 62.13 - 71.53	272	88.01 85.59 - 90.43	646
Not satisfied	21.35(21.34) 19.68 - 23.01	509	28.74 24.73 - 32.74	148	21.95 18.87 - 25.02	160	27.76 23.29 - 32.24	113	11.99 9.57 - 14.41	88
No service	1.47(1.01) 0.97 - 1.98	24	0	0	0.27 -0.17 - 0.72	2	5.41 3.09 - 7.73	22	0	0

Indicator	DISTRICT % wt (unwt) 95% CI	Based on	JAHANIA % unwt 95% CI	Based on	KABIRWALA % unwt 95% CI	Based on	KHANEWAL % unwt 95% CI	Based on	MIAN CHANNU % unwt 95% CI	Based on
Sewerage service		*n=2384*		*n=515*		*n=733*		*n=405*		*n=731*
Satisfied	31.12(29.99) 29.24 - 33.00	715	12.62 9.66 - 15.59	65	39.29 35.69 - 42.89	288	21.98 17.82 - 26.13	89	37.35 33.77 - 40.92	273
Not satisfied	32.18(31.92) 30.28 - 34.08	761	24.85 21.02 - 28.68	128	31.24 27.82 - 34.66	229	28.64 24.12 - 33.17	116	39.4 35.79 - 43.01	288
No service	36.7(38.09) 34.74 - 38.65	908	62.52 58.25 - 66.80	322	29.47 26.10 - 32.84	216	49.38 44.39 - 54.38	200	23.26 20.12 - 26.39	170
Garbage service		*n=2389*		*n=513*		*n=729*		*n=409*		*n=738*
Satisfied	3.94(4.14) 3.14 - 4.74	99	1.17 0.14 - 2.20	6	1.1 0.27 - 1.92	8	0.73 -0.22 - 1.68	3	11.11 8.78 - 13.45	82
Not satisfied	5.79(7.28) 4.83 - 6.75	174	15.98 12.72 - 19.25	82	3.98 2.49 - 5.47	29	0.73 -0.22 - 1.68	3	8.13 6.09 - 10.17	60
No service	90.27(88.57) 89.07 - 91.48	2116	82.85 79.49 - 86.21	425	94.92 93.26 - 96.59	692	98.53 97.25 - 99.82	403	80.76 77.85 - 83.67	596
Government water supply		*n=2398*		*n=516*		*n=734*		*n=410*		*n=738*
Satisfied	5.87(5.55) 4.90 - 6.83	133	0.19 -0.28 - 0.67	1	14.03 11.45 - 16.61	103	0.24 -0.36 - 0.84	1	4.07 2.57 - 5.56	30
Not satisfied	2.87(3) 2.18 - 3.56	72	99.81 99.33 - 100.28	515	0.54 -0.06 - 1.15	4	99.76 99.16 - 100.36	409	8.94 6.82 - 11.07	66
No service	91.26(91.45) 90.11 - 92.42	2193	0	0	85.42 82.80 - 88.04	627	0	0	86.99 84.50 - 89.49	642
Gas supply		*n=2397*		*n=516*		*n=733*		*n=733*		*n=738*
Satisfied	9.51(11.76) 8.31 - 10.70	282	19.19 15.69 - 22.68	99	0	0	0	0	24.8 21.61 - 27.98	183
Not satisfied	1.54(1.67) 1.03 - 2.06	40	0.78 -0.08 - 1.63	4	0.14 -0.20 - 0.47	1	0.24 -0.36 - 0.84	1	4.61 3.03 - 6.19	34
No service	88.95(86.57) 87.67 - 90.23	2075	80.04 76.49 - 83.58	413	99.86 99.53 - 100.20	732	99.76 99.16 - 100.36	409	70.6 67.24 - 73.95	521
Electricity supply		*n=2394*		*n=515*		*n=732*		*n=410*		*n=737*
Satisfied	76.74(78.24) 75.02 - 78.45	1873	87.57 84.63 - 90.52	451	77.6 74.51 - 80.68	568	70.98 66.46 - 75.49	291	76.39 73.26 - 79.52	563
Not satisfied	17.19(16.58) 15.65 - 18.72	397	12.43 9.48 - 15.37	64	9.84 7.61 - 12.06	72	22.44 18.28 - 26.60	92	22.93 19.83 - 26.03	169
No service	6.08(5.18) 5.10 - 7.05	124	0	0	12.57 10.10 - 15.04	92	6.59 4.06 - 9.11	27	0.68 0.02 - 1.34	5
Government health service		*n=2347*		*n=510*		*n=700*		*n=403*		*n=734*
Satisfied	42.2(41.8) 40.18 - 44.22	981	36.86 32.58 - 41.15	188	49.71 45.94 - 53.49	348	37.97 33.10 - 42.83	153	39.78 36.17 - 43.39	292
Not satisfied	50.2(50.79) 48.15 - 52.24	1192	49.8 45.37 - 54.24	254	46.43 42.66 - 50.19	325	45.66 40.67 - 50.64	184	58.45 54.81 - 62.08	429
No service	7.61(7.41) 6.51 - 8.70	174	13.33 10.28 - 16.38	68	3.86 2.36 - 5.36	27	16.38 12.64 - 20.11	66	1.77 0.75 - 2.79	13

Indicator	DISTRICT % wt (unwt) 95% CI	Based on	JAHANIA % unwt 95% CI	Based on	KABIRWALA % unwt 95% CI	Based on	KHANEWAL % unwt 95% CI	Based on	MIAN CHANNU % unwt 95% CI	Based on
Government education service		*n=2375*		*n=511*		*n=717*		*n=409*		*n=738*
Satisfied	74.35(74.99) 72.58 - 76.13	1781	66.93 62.75 - 71.10	342	80.89 77.95 - 83.84	580	58.44 53.54 - 63.33	239	84.01 81.30 - 86.72	620
Not satisfied	23.72(23.62) 21.99 - 25.45	561	33.07 28.90 - 37.25	169	17.85 14.98 - 20.73	128	35.7 30.93 - 40.46	146	15.99 13.28 - 18.70	118
No service	1.93(1.39) 1.35 - 2.50	33	0	0	1.26 0.37 – 2.14	9	5.87 3.47 - 8.27	24	0	0
Government agriculture service		*n=1910*		*n=428*		*n=640*		*n=371*		*n=471*
Satisfied	50.51(54.5) 48.24 - 52.77	1041	69.63 65.15 - 74.10	298	66.88 63.15 - 70.60	428	23.45 19.00 - 27.90	87	48.41 43.79 - 53.03	228
Not satisfied	22.92(23.66) 21.01 - 24.84	452	21.03 17.05 - 25.01	90	16.41 13.46 - 19.35	105	17.79 13.76 - 21.82	66	40.55 36.01 - 45.09	191
No service	26.57(21.83) 24.56 - 28.58	417	9.35 6.47 - 12.22	40	16.72 13.75 - 19.69	107	58.76 53.62 - 63.90	218	11.04 8.10 - 13.98	52
Household environment and ventilation										
Houses with some arrangement for ventilation	82.91(84.33) 81.37 - 84.44	2374	90.04 87.35 - 92.73	512	90.44 88.23 - 92.66	722	71.57 67.07 - 76.07	408	81.42 78.53 - 84.31	732
Kitchen/cooking area separate from main living area	56.95(59.08) 54.94 - 58.95	2400	72.48 68.53 - 76.43	516	71.12 67.77 - 74.46	734	42.68 37.77 - 47.59	410	46.89 43.23 - 50.56	740
Kitchen/cooking area separate from sleeping area	65.76(67.58) 63.85 - 67.68	2400	81.2 77.73 - 84.67	516	75.75 72.58 - 78.92	734	56.59 51.67 - 61.51	410	56.08 52.44 - 59.72	740
Types of cooking stove used by households		*n=2397*		*n=515*		*n=733*		*n=409*		*n=740*
Sui gas stove	9.53(11.72) 8.33 - 10.72	281	18.83 15.36 - 22.31	97	0	0	0.24 -0.36 - 0.85	1	24.73 21.55 - 27.91	183
Wood stove	88.42(86.19) 87.12 - 89.72	2066	78.64 75.00 - 82.28	405	97 95.70 - 98.30	711	98.04 96.58 - 99.51	401	74.19 70.97 - 77.41	549
Kerosene stove	0.05(0.04) -0.06 - 0.15	1	0	0	0.14 -0.20 - 0.47	1	0	0	0	0
Electric	0.05(0.04) -0.06 - 0.15	1	0	0	0.14 -0.20 - 0.47	1	0	0	0	0
Cow dung (Ooplay)	1.37(1.46) 0.89 - 1.86	35	1.94 0.65 - 3.23	10	2.46 1.27 - 3.64	18	0.49 -0.31 - 1.29	2	0.68 0.02 - 1.33	5
Gas Cylinder	0.59(0.54) 0.26 - 0.92	13	0.58 -0.17 - 1.34	3	0.27 -0.17 - 0.72	2	1.22 0.04 - 2.41	5	0.41 -0.12 - 0.93	3
Households using cooking stove that doesn't produce smoke	10.16(12.31) 8.93 - 11.39	2397	19.42 15.90 - 22.93	515	0.41 -0.12 - 0.94	733	1.47 0.18 - 2.75	409	25.14 21.94 - 28.33	740
Households use some heating system	36.09(36.71) 34.15 - 38.03	2400	40.89 36.55 - 45.23	516	36.65 33.09 - 40.20	734	33.9 29.20 - 38.61	410	35.41 31.89 - 38.92	740
Types of heating system used by households		*n=2400*		*n=516*		*n=734*		*n=410*		*n=740*
None	63.91(63.29) 61.97 - 65.85	1519	59.11 54.77 - 63.45	305	63.35 59.80 - 66.91	465	66.1 61.39 - 70.80	271	64.59 61.08 - 68.11	478

Indicator	DISTRICT % wt (unwt) 95% CI	Based on	JAHANIA % unwt 95% CI	Based on	KABIRWALA % unwt 95% CI	Based on	KHANEWAL % unwt 95% CI	Based on	MIAN CHANNU % unwt 95% CI	Based on
Sui gas stove	3.93(5.04) 3.13 - 4.72	121	10.08 7.38 - 12.77	52	0.14 -0.20 - 0.47	1	0	0	9.19 7.04 - 11.34	68
Wood heater stove	29.44(29.29) 27.60 - 31.29	703	29.65 25.61 - 33.69	153	35.01 31.49 - 38.53	257	28.54 24.04 - 33.03	117	23.78 20.65 - 26.92	176
Coal heater stove	1.43(1.17) 0.94 - 1.93	28	0.39 -0.25 - 1.02	2	0.41 -0.12 - 0.94	3	3.66 1.72 - 5.60	15	1.08 0.27 - 1.89	8
Kerosene heater stove	0.1(0.13) -0.05 - 0.25	3	0.19 -0.28 - 0.67	1	0	0	0	0	0.27 -0.17 - 0.71	2
Electric heater stove	0.56(0.54) 0.24 - 0.87	13	0.58 -0.17 - 1.33	3	0.54 -0.06 - 1.15	4	0.73 -0.22 - 1.68	3	0.41 -0.12 - 0.93	3
Cow dung (Ooplay)	0.47(0.38) 0.18 - 0.77	9	0	0	0.54 -0.06 - 1.15	4	0.98 -0.10 - 2.05	4	0.14 -0.20 - 0.47	1
Gas Cylinder	0.16(0.17) -0.02 - 0.34	4	0	0	0	0	0	0	0.54 -0.06 - 1.14	4
Households using heating system that doesn't produce smoke	68.55(69.04) 66.67 - 70.43	2400	69.77 65.71 - 73.83	516	64.03 60.49 - 67.57	734	66.83 62.15 - 71.51	410	74.73 71.53 - 77.93	740
Households with someone smoking inside the household	54.44(53.42) 52.43 - 56.46	2396	51.46 47.04 - 55.87	515	52.94 49.25 - 56.63	731	62.68 57.88 - 67.49	410	50.14 46.47 - 53.81	740
Household drinking water supply										
Type of water supply		*n=2396*		*n=515*		*n=733*		*n=410*		*n=738*
Piped water	2.71(2.55) 2.04 - 3.38	61	0	0	5.87 4.10 - 7.64	43	0.49 -0.31 - 1.28	2	2.17 1.05 - 3.29	16
Underground water	97.04(97.29) 96.34 - 97.74	2331	100 99.90 - 100.10	515	94.13 92.36 - 95.90	690	98.54 97.25 - 99.82	404	97.83 96.71 - 98.95	722
Surface water	0.25(0.17) 0.03 - 0.47	4	0	0	0	0	0.98 -0.10 - 2.05	4	0	0
Distance of source from the household										
Household with water supply within the household	97.13(97.62) 96.44 - 97.82	2396	99.22 98.37 - 100.08	515	97.95 96.86 - 99.05	733	93.66 91.18 - 96.14	410	98.37 97.39 - 99.35	738
Water source with in 500m of the households including those within the household	99.51(99.66) 99.21 - 99.81	2378	100 99.90 - 100.10	515	99.86 99.53 - 100.20	730	98.23 96.81 - 99.66	396	100 99.93 - 100.07	737
Protection of water source										
Households getting their drinking water from a protected source	98.85(98.91) 98.40 - 99.29	2396	99.81 99.33 -100.28	515	99.86 99.53 - 100.20	733	98.54 97.25 - 99.82	410	97.56 96.38 - 98.74	738
Use some method to treat drinking water	1.29(1.15) 0.81 - 1.76	2347	1.03 0.03 - 2.04	484	0.14 -0.20 - 0.48	717	2.94 1.18 - 4.70	408	1.22 0.36 - 2.08	738
Household use of latrine										
Use household or communal latrine	61.08(62.65) 59.11 - 63.05	2399	66.09 61.90 - 70.27	516	51.77 48.09 - 55.45	734	54.15 49.20 - 59.09	410	75.78 72.62 - 78.93	739
Household with formal type of latrine	58.26(59.87) 56.26 - 60.26	2385	63.5 59.24 - 67.75	515	47.67 43.98 - 51.36	730	51.72 46.74 - 56.69	408	74.04 70.80 - 77.29	732

Indicator	DISTRICT % wt (unwt) 95% CI	Based on	JAHANIA % unwt 95% CI	Based on	KABIRWALA % unwt 95% CI	Based on	KHANEWAL % unwt 95% CI	Based on	MIAN CHANNU % unwt 95% CI	Based on
Reasons for not having a latrine		*n=821*		*n=150*		*n=325*		*n=181*		*n=165*
No Money/Latrine not provided	89.14(89.04) 86.95 - 91.33	731	90.67 85.68 - 95.66	136	84.92 80.88 - 88.97	276	92.82 88.78 - 96.86	168	91.52 86.96 - 96.07	151
No need/no tradition/no awareness	5.79(6.33) 4.13 - 7.45	52	7.33 2.83 - 11.84	11	11.08 7.51 - 14.64	36	0	0	3.03 0.11 - 5.95	5
No space/damaged by rain	2.33(2.19) 1.24 - 3.42	18	2 -0.57 - 4.57	3	0.92 -0.27 - 2.12	3	3.87 0.78 - 6.95	7	3.03 0.11 - 5.95	5
No water/no electricity/no sewerage/bad smell	2.74(2.44) 1.56 - 3.91	20	0	0	3.08 1.05 - 5.11	10	3.31 0.43 - 6.20	6	2.42 -0.23 - 5.07	4
Observations on household hygiene										
Garbage present in the household around the door step	77.39(77.14) 75.69 - 79.09	2388	83.07 79.73 - 86.41	514	85.05 82.39 - 87.71	729	81.42 77.53 - 85.31	409	62.77 59.21 - 66.33	736
Excreta present in the household around the doorstep	58.49(57.89) 56.49 - 60.49	2389	61.4 57.09 - 65.71	513	70.55 67.17 - 73.92	730	61.43 56.57 - 66.28	407	41 37.39 - 44.62	739
Sewage water present in the household around the doorstep	43.21(42.6) 41.21 - 45.22	2392	44.19 39.80 - 48.57	516	46.85 43.16 - 50.54	730	48.53 43.56 - 53.50	408	34.01 30.53 - 37.50	738
Proportion of households where observation of drinking water container was possible	73.88(73.17) 72.09 - 75.66	2389	70.35 66.31 - 74.39	516	71.39 68.04 - 74.74	727	78.97 74.90 - 83.04	409	73.68 70.43 - 76.92	737
Drinking water container is covered	96.95(97.19) 96.11 - 97.78	1744	98.62 97.28 - 99.96	362	97.09 95.55 - 98.64	516	95.98 93.68 - 98.27	323	97.05 95.54 - 98.57	543
Drinking water container was clean	85.22(84.93) 83.52 - 86.92	1738	85.87 82.14 - 89.60	361	82.1 78.69 - 85.51	514	89.75 86.28 - 93.22	322	84.1 80.93 - 87.28	541
Water container is raised from ground level	58.78(58.97) 56.43 - 61.13	1733	64.25 59.14 - 69.35	358	70.04 65.98 - 74.10	514	56.56 50.98 - 62.15	320	46.4 42.10 - 50.69	541
Households with their water container clean, covered and raised	53.34(53.52) 50.96 - 55.72	1734	59.61 54.39 - 64.83	359	63.23 58.96 - 67.50	514	52.5 46.87 - 58.13	320	40.85 36.62 - 45.08	541
LHW visits to the household										
Proportion of households ever visited by a LHW	59.94(58.24) 57.95 - 61.92	2390	46.32 41.92 - 50.72	516	49.11 45.41 - 52.81	729	69.85 65.28 - 74.43	408	69.2 65.80 - 72.60	737
Time since last visit by an LHW		*n=2325*		*n=481*		*n=710*		*n=403*		*n=731*
Never visited by an LHW	40.97(42.92) 38.95 - 43.00	998	57.59 53.07 - 62.11	277	52.25 48.51 - 56.00	371	30.52 25.90 - 35.14	123	31.05 27.63 - 34.48	227
Last visit within a month	54.31(52.82) 52.26 - 56.35	1228	41.37 36.87 - 45.88	199	44.23 40.50 - 47.95	314	62.78 57.94 - 67.62	253	63.2 59.64 - 66.77	462
More than one but within last three months	4.36(3.91) 3.51 - 5.22	91	1.04 0.03 - 2.05	5	3.38 1.98 - 4.78	24	6.45 3.93 - 8.97	26	4.92 3.29 - 6.56	36
More than three but within last six months	0.21(0.22) 0.00 - 0.42	5	0	0	0.14 -0.21 - 0.49	1	0	0	0.55 -0.06 - 1.15	4
More than six months but within the last year	0.15(0.13) 0.03 - 0.32	3	0	0	0	0	0.25 -0.36 - 0.86	1	0.27 -0.17 - 0.72	2

Table 2. Mother and child indicators by tehsil

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
INFORMATION BASE										
Total mothers/care takers interviewed		2497		551		756		419		771
Respondents in each age group		*n=2487*		*n=550*		*n=752*		*n=418*		*n=767*
Less then 18 years	0.68(0.68) 0.34 - 1.03	17	0.73 -0.07 - 1.53	4	1.2 0.35 - 2.04	9	0.48 -0.30 - 1.26	2	0.26 -0.17 - 0.69	2
18-30 years	62.98(62.4) 61.06 -64.90	1552	59.45 55.26 - 63.65	327	65.03 61.55 - 68.50	489	64.59 59.89 - 69.30	270	60.76 57.24 - 64.28	466
31-50 years	33.7(34.02) 31.82 -35.58	846	35.27 31.19 - 39.36	194	30.85 27.48 - 34.22	232	33.25 28.62 - 37.89	139	36.64 33.16 - 40.11	281
51 years and above	2.64(2.9) 1.99 - 3.29	72	4.55 2.71 – 6.38	25	2.93 1.65 - 4.20	22	1.67 0.32 - 3.02	7	2.35 1.21 - 3.48	18
Mothers/caretakers with some formal education	27.48(28.5) 25.71 -29.25	709/2488	29.82 25.90 - 33.73	164/550	20.72 17.76 - 23.68	156/753	22.49 18.37 - 26.61	94/418	38.46 34.95 - 41.97	295/767
Total children aged <60 months		3586		803		1078		615		1090
Among children 0-59 months of age										
Proportion of boys	51.54(51.48) 49.89 -53.19	1846/ 3586	51.06 47.54 - 54.58	410/803	51.48 48.45 - 54.51	555/1078	51.71 47.68 - 55.74	318/615	51.65 48.64 - 54.66	563/1090
Proportion of girls aged	48.46(48.52) 46.81 -50.11	1740/ 3586	48.94 45.42 - 52.46	393/803	48.52 45.49 - 51.55	523/1078	48.29 44.26 - 52.32	297/615	48.35 45.34 - 51.36	527/1090
Children for whom their mothers provided the information	91.13(90.84) 90.19 -92.08	3253/ 3581	89.66 87.50 -91.83	720/803	90.8 89.03 - 92.57	977/1076	92.85 90.73 - 94.96	571/615	90.62 88.84 - 92.40	985/1087
MOTHERS'/CARETAKERS' KNOWLEDGE, ATTITUDE AND PRACTICES ABOUT CHILD HEALTH AND CARE										
Awareness about immunization										
Mothers having heard about immunization	93.85(93.29) 92.89 -94.82	2323/ 2490	88.34 85.57 - 91.12	485/549	90.73 88.59 - 92.86	685/755	95.92 93.91 - 97.94	400/417	97.92 96.85 - 98.99	753/769
Sources to hear about immunization from (multiple responses recorded)		2490		*549*		*755*		*417*		*769*
Nowhere	2.7	68	2.4	13	4.9	37	2.6	11	2.6	7
Electronic media	28.4	707	41.2	226	30.2	228	16.8	70	16.8	183
Written material (newspaper, pamphlet)	.7	17	1.6	9	.7	5	.7	3	.7	0
Family, neighbours, friends	13.9	346	14.6	80	12.1	91	13.2	55	13.2	120
School	.2	4	0	0	.1	1	.2	1	.2	2
Doctor, hospital	10.4	260	9.8	54	13.4	101	6.0	25	6	80
LHW, LHV, Dai	4.7	116	1.6	9	2.8	21	9.1	38	9.1	48
Vaccination team	8.4	209	10.6	58	7.4	56	10.6	44	10.6	51

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Announcement	33.8	842	21.1	116	30.7	232	45.6	190	39.5	304
Don't know (incl. I knew myself)	4.3	108	10.0	55	4.6	32	1.7	7	1.4	11
Mothers mentioning at least one illness prevented by immunization (even if incorrect)	83.71(83.08) 82.23 -85.19	2043/ 2459	79.71 76.25 - 83.17	436/547	75.75 72.59 - 78.91	559/738	90.1 87.10 - 93.09	373/414	88.82 86.51 - 91.12	675/760
Mothers mentioning at least one correct illness that can be prevented by immunization	75.97(75.44) 74.26 -77.68	1855/ 2459	72.21 68.37 - 76.06	395/547	70.05 66.68 - 73.43	517/738	80.68 76.75 - 84.60	334/414	80.13 77.23 - 83.03	609/760
Views about benefits of immunization										
Neighbours' views about immunizing as reported by mothers/caretakers		*n=2496*		*n=551*		*n=755*		*n=419*		*n=771*
Thinks it's worthwhile	90.98(90.87) 89.84 -92.13	2268	90.56 88.03 - 3.09	499	91.26 89.18 - 93.3	689	91.65 88.88 - 94.4	384	90.27 88.12 - 92.43	696
Don't think it's worthwhile	2.09(2) 1.51 - 2.67	50	2.18 0.87 - 3.49	12	2.91 1.65 - 4.18	22	2.63 0.98 - 4.28	11	0.65 0.02 - 1.28	5
Don't know	6.93(7.13) 5.92 - 7.95	178	7.26 5.00 - 9.52	40	5.83 4.09 - 7.57	44	5.73 3.38 - 8.07	24	9.08 6.99 - 11.17	70
Mothers' own perception about immunizing the child		*n=2495*		*n=550*		*n=755*		*n=419*		*n=771*
Thinks it's worthwhile	95.91(95.67) 95.12 -96.71	2387	92.91 90.67 - 95.15	511	94.17 92.43 - 95.91	711	96.42 94.52 - 98.32	404	98.7 97.84 - 99.57	761
Don't think it's worthwhile	2.38(2.69) 1.77 - 3.00	67	5.64 3.62 - 7.65	31	2.78 1.54 - 4.02	21	2.15 0.64 - 3.66	9	0.78 0.09 - 1.46	6
Don't know if it's worthwhile or not	1.7(1.64) 1.17 - 2.23	41	1.45 0.36 - 2.55	8	3.05 1.75 - 4.34	23	1.43 0.18 - 2.69	6	0.52 -0.05 - 1.09	4
Reasons for being worthwhile		*n=2332*		*n=503*		*n=682*		*n=393*		*n=760*
Protection against illness	97.88(97.68) 97.28 -98.49	2278	96.02 94.22-97.83	483	97.36 96.08-98.44	664	98.74 97.13-99.81	387	98.67 97.79-99.56	744
Important to immunize	1.32(1.42) 0.84 - 1.81	33	1.99 0.67-3.31	10	1.76 0.70-2.82	12	0.76 -0.22-1.75	3	1.06 0.26-1.86	8
Create immunities against	0.06(0.04) -0.06 - 0.19	1	0	0	0	0	0.25 -0.37-0.88	1	0	0
Govt order	0.73(0.86) 0.36 - 1.10	20	1.99 0.67-3.31	10	0.88 0.11-1.65	6	0.51 -0.32-1.34	2	0.27 -0.17-0.70	2
Reasons for not being worthwhile		*n=55*		*n=23*		*n=17*		*n=9*		*n=6*
Felt it is not necessary	40.22(47.27) 26.35 -54.09	26	65.22 43.58-86.86	15	41.8 14.84-67.51	7	11.11 -14.98-37.20	1	50 1.66-98.34	3
Child gets sick from vaccine	42.15(34.55) 28.19 -56.11	19	13.04 -2.89-28.98	3	47.06 20.39-73.73	8	66.67 30.31-103.02	6	33.33 -12.72-79.39	2
Immunization has no effect	8.14(9.09) 0.00 - 16.28	5	13.04 -2.89-28.98	3	0	0	11.11 -14.98-37.20	1	16.67 -21.49-54.82	1
Limbs stop working	2.97(1.82) -2.43 - 8.36	1	0	0	0	0	11.11 -14.98-37.20	1	0	0

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Child may die	2.16(1.82) -2.59 - 6.91	1	0	0	5.88 -8.24-20.01	1	0	0	0	0
Hospital too far	4.36(5.45) -1.95 - 10.67	3	8.70 -4.99-22.39	2	5.88 -8.24-20.01	1	0	0	0	0
Views about adverse effects of immunization										
Mothers who have heard about any bad effects of immunization	3.34(3.25) 2.61 - 4.06	81/2490	3.45 1.83 - 5.06	19/551	2.26 1.13 - 3.39	17/753	4.82 2.64 - 7.00	20/415	3.24 1.93 - 4.56	25/771
Types of bad effects of immunization that mothers had heard of		*n=2490*		*n=551*		*n=753*		*n=415*		*n=771*
Nothing	96.66(96.75) 95.94 -97.39	2409	96.55 94.94 - 98.17	532	97.74 96.61 - 98.87	736	95.18 93.00 - 97.36	395	96.76 95.44 - 98.07	746
Actual side-effects	1.24(1.29) 0.78 - 1.69	32	2.18 0.87 - 3.49	12	0.66 0.02 - 1.31	5	1.93 0.48 - 3.37	8	0.91 0.17 - 1.64	7
Incorrect perceptions	1.78(1.69) 1.24 - 2.32	42	1.09 0.13 - 2.05	6	1.06 0.26 - 1.86	8	2.41 0.81 - 4.01	10	2.33 1.20 - 3.47	18
Not specified	0.32(0.28) 0.08 - 0.56	7	0.18 -0.26 - 0.63	1	0.53 -0.05 - 1.12	4	0.48 -0.30 - 1.27	2	0 	0
Heard from somewhere specific	57.84(56.25) 46.39 -69.29	45/80	44.44 18.71 - 70.18	8/18	62.5 35.65 -89.35	10/16	59.09 36.27 - 81.91	13/22	58.33 36.53 - 80.14	14/24
Source of information about bad effects of immunization		*n=80*		*n=18*		*n=16*		*n=22*		*n=24*
Nowhere	4.94(5) -0.43 - 10.31	4	11.11 -6.19 - 28.41	2	0	0	9.09 -5.19 - 23.38	2	0	0
Electronic media (incl govt)	2.63(2.5) -1.50 - 6.75	2	0	0	12.5 -6.83 - 31.83	2	0	0	0	0
Family, neighbours, friends	55.21(53.75) 43.69 -66.74	43	44.44 18.71 - 0.18	8	50 22.38 - 77.63	8	59.09 36.27 - 81.91	13	58.33 36.53 - 80.14	14
Don't know/myself	37.22(38.75) 26.00 -48.44	31	44.44 18.71 -70.18	8	37.5 10.65 - 64.35	6	31.82 10.08 - 53.55	7	41.67 19.86 - 63.47	10
Mothers who had discussed immunization in their family	84.15(83.06) 82.70 -85.61	2064/ 2485	75.92 72.23 - 79.60	413/544	74.44 71.26 - 77.61	562/755	92.33 89.65 - 95.00	385/417	91.55 89.52 - 93.58	704/769
Knowledge about diarrhoea and its management										
Mentioned something as a reason for diarrhoea even if incorrect or non specific	91.54(90.63) 90.42 -92.66	2233/ 2464	81.43 78.07 - 84.79	443/544	89.37 87.08 - 91.65	664/743	92.51 89.86 - 95.17	383/414	97.38 96.18 - 98.58	743/763
Mentioned correct reasons for diarrhoea	67.05(65.99) 65.17 -68.92	1626/ 2464	56.62 52.36 -60.87	308/544	61.91 58.35 - 65.47	460/743	70.53 66.02 - 75.04	292/414	74.18 71.01 - 77.35	566/763
Mother would give more fluid during diarrhoea	74.58(76.82) 72.85 -76.31	1915/ 2493	85.48 82.45 - 88.51	471/551	75.27 72.12 - 78.42	566/752	61.58 56.80 - 66.35	258/419	80.42 77.55 - 83.28	620/771
Mother would give same or more food during diarrhoea	59.84(61.42) 57.90 -61.79	1530/ 2491	64.97 60.90 - 69.05	358/551	50.27 46.63 - 53.91	378/752	53 48.09 - 57.91	221/417	74.32 71.17 - 77.47	573/771
Mothers' interaction with LHW										
Proportion of mothers ever visited by a LHW	59.77(57.97) 57.83 -61.71	1447/ 2496	45.55 41.30 - 49.80	251/551	48.08 44.45 - 51.71	363/755	70.41 65.92 - 74.90	295/419	69.78 66.47 - 73.09	538/771

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Period since last LHW visit		*n=2433*		*n=516*		*n=738*		*n=414*		*n=765*
Never	41.08(43.12) 39.10 -43.05	1049	58.14 53.79 - 62.49	300	53.12 49.45 - 56.78	392	29.95 25.42 - 34.48	124	30.46 27.13 - 33.78	233
Within the last one month	54.07(52.53) 52.07 -56.07	1278	40.5 36.17 - 44.8	209	43.5 39.85 - 47.1	321	62.56 57.78 - 67.3	259	63.92 60.45 - 67.39	489
More than one but within last 6 months	4.52(4.03) 3.67 - 5.36	98	1.36 0.26 - 2.45	7	3.25 1.90 - 4.60	24	7.25 4.63 - 9.86	30	4.84 3.25 - 6.42	37
More than six month but within 1 year	0.2(0.21) 0.00 - 0.40	5	0	0	0.14 -0.20 - 0.47	1	0	0	0.52 -0.05 - 1.10	4
More than a year ago	0.14(0.12) -0.03 - 0.31	3	0	0	0	0	0.24 -0.35 - 0.84	1	0.26 -0.17 - 0.69	2
Among mothers/caretakers ever visited by LHW										
LHW did tell something about diarrhoea prevention	6.18(6.17) 4.89 - 7.47	87/1410	4.09 1.25 - 6.94	9/220	9.44 6.28 - 12.60	34/360	4.08 1.65 - 6.51	12/294	5.97 3.87 - 8.07	32/536
LHW did tell something about diarrhoea treatment	12.79(12.84) 11.01 -14.57	181/1410	8.64 4.70 - 12.58	19/220	15 11.17 - 18.83	54/360	9.52 6.00 - 13.05	28/294	14.93 11.82 - 18.04	80/536
LHW did tell something about recognizing ARI	0.86(0.85) 0.34 - 1.37	12/1407	0	0/219	1.11 -0.11 - 2.33	4/360	0.34 -0.50 - 1.18	1/294	1.31 0.25 - 2.37	7/534
LHW did tell something about treatment for ARI	2.32(2.34) 1.49 - 3.14	33/1409	1.37 -0.40 - 3.14	3/219	3.06 1.14 - 4.97	11/360	1.36 -0.13 - 2.85	4/294	2.8 1.31 - 4.29	15/536
LHW did tell something about vaccination	24.77(23.24) 22.48 -27.06	326/1403	9.17 5.11 - 13.24	20/218	29.97 25.08 - 34.86	107/357	27.46 22.20 - 32.72	81/295	22.14 18.52 - 25.76	118/533
CHILD HEALTH AND CARE										
Total children aged <60 months		3586		803		1078		615		1090
Proportion of children attending a school (incl. pre-primary schooling)	6.95(7.16) 6.10 - 7.79	255/3561	8.02 6.07 - 9.97	64/798	4.61 3.30 - 5.91	49/1064	6.86 4.78 - 8.95	42/612	9.2 7.44 - 10.96	100/1087
Proportion of children 0-6 months of age being exclusively breastfed	66.28(63.91) 62.06 -70.49	324/507	55.56 47.09 -64.02	80/144	68.15 59.92 - 76.38	92/135	76.74 67.23 - 86.25	66/86	60.56 52.17 - 68.95	86/142
Childhood Diarrhoea										
Prevalence of diarrhoea										
Children 0-59 months who suffered from diarrhoea during last 15 days	28.84(28.03) 27.32 -30.36	976/3482	26.42 23.29 - 29.56	209/791	24.83 22.16 - 27.51	258/1039	31.75 27.90 - 35.59	187/589	30.29 27.48 - 33.10	322/1063
Children 0-59 months who suffered from diarrhoea during last 12 months	74.81(75.5) 73.35 -76.27	2629/ 3482	74.59 71.49 -77.69	590/791	78.25 75.69 - 80.81	813/1039	71.99 68.27 - 75.70	424/589	75.45 72.81 - 78.08	802/1063
Among those who suffered from diarrhoea during last 12 months										
Children whose last episode of diarrhoea lasted for more than 3 days	54.5(54.07) 52.46 -56.54	1077/ 2345	51.98 47.63 - 56.3	275/529	46 42.37 - 49.63	345/750	47.15 41.93 - 52.3	174/369	40.6 36.88 - 44.32	283/697
Children who had blood in stools during last episode of diarrhoea	11.81(12.09) 10.55 -13.06	317/2621	12.8 10.01 - 15.59	75/586	11.48 9.22 - 13.74	93/810	9.91 6.94 - 12.87	42/424	13.36 10.94 - 15.78	107/801

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Treatment of diarrhoea (among those who suffered from diarrhoea during last 12 months)										
Household management of diarrhoea										
Proportion of children who were given more fluid during last episode of diarrhoea	69.2(71.21) 67.41 -70.98	1870/ 2626	76.27 72.75 -79.79	450/590	72.29 69.15 - 75.43	587/812	53.19 48.32 - 58.06	225/423	75.91 72.88 - 78.93	608/801
Proportion of children who were given same or more quantity of food during diarrhoea	62.85(64.44) 60.98 -64.72	1689/ 2621	70 66.22 - 73.78	413/590	52.96 49.46 - 56.45	430/812	57.96 53.12 - 62.79	244/421	75.44 72.39 - 78.49	602/798
Proportion of children who were given anti-diarrhoeal drugs during last episode of diarrhoea	82.4(82.58) 80.92 -83.88	2152/ 2606	83.45 80.35 - 86.54	489/586	85.27 82.75 - 87.79	683/801	80.09 76.17 - 84.02	338/422	80.55 77.74 - 83.36	642/797
Taking children with diarrhoea to a health facility/provider										
Type of health facility where the child taken for treatment		*n=2619*		*n=588*		*n=809*		*n=424*		*n=798*
Nowhere	23.91(23.75) 22.26 -25.57	622	19.56 16.27 - 22.8	115	19.04 16.27 - 21.8	154	23.82 19.65 - 27.9	101	31.58 28.29 - 34.87	252
Government health facility	3.78(3.89) 3.03 - 4.53	102	5.1 3.24 - 6.97	30	4.94 3.39 - 6.50	40	3.3 1.48 - 5.12	14	2.26 1.16 - 3.35	18
Private qualified facility/practitioner	21.22(21.38) 19.64 -22.81	560	21.09 17.71 - 24.4	124	16.69 14.06 - 19.3	135	21.7 17.66 - 25.74	92	26.19 23.08 - 29.30	209
Private, non medically qualified practitioner	50.66(50.4) 48.73 -52.59	1320	52.38 48.26 - 56.50	308	58.96 55.51 - 62.41	477	50.94 46.07 - 55.8	216	39.97 36.51 - 43.44	319
NGO/services facility	0.42(0.57) 0.15 - 0.68	15	1.87 0.69 - 3.05	11	0.37 -0.11 - 0.85	3	0.24 -0.34 - 0.82	1	0	0
Proportion of children taken somewhere for treatment	76.09(76.25) 74.43 -77.74	1997/ 2619	80.44 77.15 - 83.73	473/588	80.96 78.20 - 83.73	655/809	76.18 72.01 - 80.35	323/424	68.42 65.13 - 71.71	546/798
Experience at the health facility										
Doctor or a health worker present at the time of visit										
Government health facility	97.3(97) 93.63 -100.98	97/100	93.1 82.16 -104.1	27/29	100 98.72 - 101.3	39/39	92.86 75.79-10.9	13/14	100 7.22-10.2	18/18
Private qualified health provider	99.52(99.46) 98.86 - 100.19	550/553	99.19 97.2 - 101.2	122/123	99.25 97.42 - 101.1	133/134	100 99.4 - 100.6	90/90	99.51 98.32 - 100.71	205/206
Private unqualified health provider	99.68(99.62) 99.33 - 100.02	1306/ 1311	99.01 97.74 -100.3	301/304	99.79 99.27 - 100.3	472/473	99.54 98.40 - 100.7	215/216	100 99.84 - 100.16	318/318
Proportion of children who were provided ORS										
Government health facility	62.31(65.35) 52.37 - 72.26	66/101	80 64.02 - 95.98	24/30	74.36 59.37 - 89.35	29/39	42.86 13.36 - 72.35	6/14	38.89 13.59 - 64.19	7/18
Private qualified health provider	56.38(56.25) 52.19 - 60.58	315/560	56.45 47.32 - 65.5	70/124	71.11 63.09 - 79.1	96/135	52.17 41.42 - 62.9	48/92	48.33 41.31 - 55.34	101/209
Private unqualified health provider	45.5(46.37) 42.77 - 48.24	606/1307	49.83 44.02 - 55.65	150/301	58.56 54.02 - 63.11	277/473	33.33 26.82 - 39.85	72/216	33.75 28.39 - 39.12	107/317

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Proportion of children who had all prescribed medicines from the health facility										
Government health facility	34.29(39.6) 24.54 - 44.04	40/101	58.62 38.97 - 78.27	17/29	40 23.57 - 56.43	16/40	100 96.43 - 103.5	14/14	38.89 13.59 - 64.19	7/18
Private qualified health provider	46.7(48.39) 42.48 - 50.92	271/560	59.68 50.64 - 68.7	74/124	52.59 43.80 - 61.3	71/135	39.13 28.61 - 49.65	36/92	43.06 36.11 - 50.01	90/209
Private unqualified health provider	81.11(82.01) 78.95 - 83.28	1067/ 1301	85.33 81.16 - 89.50	256/300	77.64 73.78 - 81.49	368/474	77.93 72.13 - 83.7	166/213	88.22 84.49 - 91.94	277/314
Proportion of children for whom the health worker gave full explanation about illness										
Government health facility	50.39(50) 40.20 - 60.59	51/102	40 20.80 - 59.20	12/30	65 48.97 - 81.03	26/40	28.57 1.34 - 55.81	4/14	50 24.12 - 75.88	9/18
Private qualified health provider	63.28(65.3) 59.20 - 67.37	365/559	78.05 70.33 - 85.7	96/123	74.07 66.31 - 81.8	100/135	52.17 41.42 - 62.9	48/92	57.89 50.96 - 64.83	121/209
Private unqualified health provider	46.24(46.56) 43.48 - 48.99	603/1295	51 45.18 - 56.82	153/300	57.96 53.40 - 62.53	273/471	40.67 33.77 - 47.57	85/209	29.21 24.03 - 34.39	92/315
Satisfaction with the service provider										
Government health facility										
Proportion of children whose parents were satisfied with behaviour of doctor/health worker	92.09(93.14) 86.37 - 97.82	95/102	96.67 88.6 - 104.8	29/30	92.5 83.09 - 101.9	37/40	85.71 63.8 - 107.6	12/14	94.44 81.08 - 107.80	17/18
Proportion of children whose parents were satisfied with the treatment	93.77(94.12) 88.58 - 98.95	96/102	96.67 88.58 - 104.8	29/30	95.0 87.00 - 103.0	38/40	92.86 75.8 - 109.9	13/14	88.89 71.59 - 106.19	16/18
Reason for being satisfied		*n=96*		*n=29*		*n=35*		*n=13*		*n=16*
Good doctor/staff available	11.69(11.46) 4.74 - 18.64	11	10.34 -2.46 - 23.15	3	7.89 -1.99 -17.78	3	15.38 -8.07 - 38.84	2	18.75 -3.50 - 41.00	3
Good facilities/services	1.79(2.08) -1.38 - 4.96	2	3.45 -4.92 -11.81	1	2.63 -3.77 - 9.04	1	0	0	0	0
Good treatment	78.36(77.08) 69.60 - 87.11	74	72.41 54.42 - 90.41	21	78.95 64.67 -93.23	30	84.62 61.16 -108.1	11	75.00 50.66 - 99.34	12
Low cost/free treatment	6.99(8.33) 1.37 - 12.61	8	13.79 -0.48 -28.07	4	7.89 -1.99 - 17.78	3	0	0	6.25 -8.74 - 21.24	1
Good access/nearby	1.18(1.04) -1.50 - 3.87	1	0	0	2.63 -3.77 - 9.04	1	0	0	0	0
Reason for being dissatisfied		*n=5*		*n=1*		*n=2*		*n=1*		*n=1*
Poor facilities/services	21.06(20) -24.68 - 66.80	1	0	0	50.00 -44.3 - 144.3	1	0	0	0	0
Treatment not good	78.94(80) 33.20 - 124.68	4	100.00 50.00-150.00	1	50.00 -44.3 - 144.3	1	100 50.00 - 150.0	1	100 50.00 - 150.00	1
Private qualified health provider										
Proportion of children whose parents were satisfied with behaviour of doctor/health worker	96.06(96.61) 94.36 - 97.76	541/560	99.19 97.2 -101.2	123/124	98.52 96.11 - 100.9	133/135	92.39 86.43 - 98.35	85/92	95.69 92.70 - 98.69	200/209

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Proportion of children whose parents were satisfied with the treatment	96.13(96.43) 94.45 - 97.82	534/560	98.39 95.77 - 101.0	122/124	97.78 94.92 - 100.6	132/135	94.57 89.39 - 99.74	87/92	95.22 92.08 - 98.35	199/209
Reason for being satisfied		*n=540*		*n=122*		*n=132*		*n=87*		*n=199*
Good doctor/staff available	20.25(20.74) 16.77 - 23.73	112	22.95 15.08 - 30.82	28	27.27 19.30 - 35.25	36	14.94 6.88 - 23.01	13	17.59 12.05 - 23.13	35
Good treatment	78.84(78.33) 75.31 - 82.38	423	75.41 67.36 - 83.46	92	71.21 63.11 - 79.32	94	83.91 75.61 - 92.20	73	82.41 76.87 - 87.10	164
Low cost/free treatment	0.62(0.74) -0.13 - 1.38	4	1.64 -1.02 - 4.30	2	1.52 -0.95 - 3.98	2	0	0	0	0
Good access/nearby	0.28(0.19) -0.26 - 0.82	1	0	0	0	0	1.15 -1.67 - 3.96	1	0	0
Reason for being dissatisfied		*n=20*		*n=2*		*n=3*		*n=5*		*n=10*
Good doctor/staff not available	11.46(10) -5.00 - 27.92	2	0	0	0	0	20 -25.06 - 65.06	1	10 -13.59 - 33.59	1
Poor facilities/services	4.43(5) -7.09 - 15.96	1	0	0	0	0	0	0	10 -13.59 - 33.59	1
Treatment not good	62.42(65) 38.70 - 86.15	13	100 75.00 - 125.00	2	33.33 -36.68 - 103.3	1	60 7.06 - 112.94	3	70 36.60 - 103.40	7
Too expensive/can't afford	16.57(15) -2.22 - 35.37	3	0	0	33.33 -36.68 - 103.3	1	20 -25.06 - 65.06	1	10 -13.59 - 33.59	1
No other choice	5.11(5) -7.04 - 17.27	1	0	0	33.33 -36.68 - 103.3	1	0	0	0	0
Private unqualified health provider										
Proportion of children whose parents were satisfied with behaviour of doctor/health worker	97.3(97.24) 96.38 - 98.22	1270/ 1306	95.68 93.22 - 98.14	288/301	98.94 97.92 - 99.97	468/473	95.35 92.30 - 98.40	205/215	97.48 95.59 - 99.36	309/317
Proportion of children whose parents were satisfied with the treatment	94.39(94.58) 93.10 - 95.67	1238/ 1309	94.68 91.98 -97.38	285/301	97.05 95.43 - 98.68	461/475	91.20 87.19 - 95.21	197/216	93.06 90.1 - 96.02	295/317
Reason for being satisfied		*n=1232*		*n=283*		*n=458*		*n=196*		*n=295*
Good doctor/staff available	12.77(13.72) 10.86 - 14.67	169	17.31 12.73 - 21.90	49	12.01 8.92 - 15.09	55	7.65 3.68 - 11.63	15	16.95 12.50 - 21.40	50
Good facilities/services	0.52(0.57) 0.08 - 0.96	7	0.35 -0.51 - 1.22	1	0.22 -0.32 - 0.75	1	0	0	1.69 0.05 - 3.34	5
Good treatment	83.06(82.22) 80.92 - 85.19	1013	79.86 75.01 - 84.71	226	83.84 80.36 - 87.32	384	88.27 83.50 - 93.03	173	77.97 73.07 - 82.87	230
Low cost/free treatment	1.79(1.62) 1.01 - 2.58	20	0.71 -0.45 - 1.86	2	1.75 0.44 - 3.06	8	2.55 0.09 - 5.01	5	1.69 0.05 - 3.34	5
Good access/nearby	1.74(1.79) 0.97 - 2.51	22	1.77 0.06 - 3.48	5	2.18 0.74 - 3.63	10	1.02 -0.64 - 2.68	2	1.69 0.05 - 3.34	5
Medicines available	0.12(0.08) -0.11 - 0.36	1	0	0	0	0	0.51 -0.74 - 1.76	1	0	0
Reason for being dissatisfied		*n=66*		*n=15*		*n=14*		*n=17*		*n=20*
Treatment not good	81.35(80.3) 71.19 - 91.50	53	73.33 47.62 - 99.05	11	85.71 63.81 - 107.6	12	82.35 61.29 - 103.4	14	80.00 59.97 - 100.03	16

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Too expensive/can't afford	6.02(6.06) -0.48 - 12.51	4	6.67 -9.29 - 22.62	1	7.14 -9.92 - 24.21	1	5.88 -8.24 - 20.01	1	5 -7.05 - 17.05	1
No other choice	12.64(13.64) 3.86 - 21.41	9	20 -3.58 - 43.58	3	7.14 -9.92 - 24.21	1	11.76 -6.49 - 30.02	2	15 -3.15 - 33.15	3
Cost of treatment of diarrhoea										
Travel cost										
Government health facility										
Paid some cost	41.58(37.62) 31.47 - 51.68	38/101	16.67 1.66 - 31.67	5/30	25.64 10.65 - 40.63	10/39	64.29 35.61 - 92.96	9/14	77.78 55.79 - 99.76	14/18
Mean amount paid in Pak Rs.	37.96 (38.29) 20.02 - 55.89	38	42 13.2 - 70.7	42	32 14.2 - 49.7	32	38.8 20.5 - 57.2	38.889	41.0 1.6 - 80.4	14
Private qualified health provider										
Paid some cost	66.71(63.72) 62.70 - 70.73	353/554	38.52 29.48 - 47.57	47/122	58.52 49.84 - 67.20	79/135	74.44 64.88 - 84.01	67/90	77.29 71.35 - 83.24	160/207
Mean amount paid in Pak Rs.	62.95 (65.26) 45.69 - 80.20	353	59.0 35.2 - 82.7	59.021	98.6 45.3 - 151.9	98.671	28.8 23.4 - 34.3	28.896	65.856 46.418 - 85.295	160
Private unqualified health provider										
Paid some cost	15.28(15.23) 13.30 - 17.27	200/1313	16.17 11.86-20.48	49/303	11.34 8.39-14.30	54/476	18.98 13.52-24.44	41/216	17.61 13.27-21.95	56/318
Mean amount paid in Pak Rs.	45.50 (46.33) 33.82 - 57.18	200	37.04 17.07-57.00	49	43.41 27.43-59.38	54	32.2 24.38-40.01	41	67.61 24.58-110.64	56
Treatment cost at the facility										
Government health facility										
Paid some cost	91.45(92.08) 85.50 - 97.40	93/101	96.67 88.58 - 104.8	29/30	89.74 78.94 - 100.6	35/39	92.86 75.79 - 109.9	13/14	88.89 71.59 - 106.19	16/18
Mean amount paid in Pak Rs.	69.53 (62.022) 14.66 - 124.39	93	3.414 2.574 - 4.254	29	81.171 -31.74 - 194.1	35	48.85 11.8 - 109.5	13	137.1 106.7 - 380.9	16
Private qualified health provider										
Paid some cost	95.52(95.47) 93.71 - 97.34	527/552	95 90.68 - 99.32	114/120	95.56 91.71 - 99.40	129/135	95.56 90.7 - 100.4	86/90	95.65 92.63 - 98.67	198/207
Mean amount paid in Pak Rs.	251.75 (240.56) 192.70 - 310.79	527	139.25 74.7 -203.8	114	185.4 124.3 - 246.5	129	289.6 200.2 - 379.0	86	313.6 201.7 - 425.5	198
Private unqualified health provider										
Paid some cost	96.21(96.16) 95.12 - 97.29	1227/ 1276	95.86 93.40 - 98.33	278/290	97.17 95.55 - 98.80	447/460	95.79 92.87 - 98.72	205/214	95.19 92.66 - 97.73	297/312
Mean amount paid in Pak Rs.	105.45 (108.26) 77.27 - 133.62	1227	118.183 4.32 - 232.1	278	70.82 59.31 - 82.32	447	108.7 78.8 - 138.5	205	155.04 44.65 - 265.43	297
Cost of medicines or investigations outside the facility										
Government health facility										
Paid some cost	64.05(59.6) 54.09 - 74.01	59/99	43.33 23.93 - 62.73	13/30	58.97 42.25 - 75.69	23/39	92.31 73.98 - 110.6	12/13	64.71 39.05 - 90.36	11/17

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Mean amount paid in Pak Rs.	487.41 (503.39) 90.34 - 884.48	59	201.69 29.57 - 373.8	13	319.35 146.9 - 491.8	23	218.2 113.8 - 322.5	12	1555.9 604.1 - 3715.9	11
Private qualified health provider										
Paid some cost	59.4(57.92) 55.21 - 63.60	318/549	40.98 31.85 - 50.12	50/122	49.24 40.33 - 58.15	65/132	61.11 50.48 - 71.74	55/90	72.2 65.82 - 78.57	148/205
Mean amount paid in Pak Rs.	466.22(458.05) 382.18 - 550.27	318	214.82 146.9 -282.7	50	269.12 194.3 - 344.0	65	446.5 273.3 - 619.7	55	627.5 443.5 - 811.5	148
Private unqualified health provider										
Paid some cost	17.99(16.76) 15.86 - 20.11	218/1301	12.33 8.45 - 16.22	37/300	21.82 17.99 - 25.6	103/472	23 17.12 - 28.89	49/213	9.18 5.84 - 12.52	29/316
Mean amount paid in Pak Rs.	256.61 (246.56) 98.18 - 415.05	218	145.3 78.9 - 211.8	37	241.21 43.01 - 525.4	103	282.2 139.1 - 425.3	49	334.52 45.13 - 623.90	29
Childhood Acute Respiratory Infections (ARI)										
Prevalence of ARI										
Proportion of 0-59 children who suffered from ARI within last 15 days	28.61(27.45) 27.10 - 30.12	959/3493	17.19 14.51 - 19.87	137/797	22.69 20.10 - 25.2	236/1040	32.24 28.34 - 36.14	186/577	37.07 34.14 - 40.00	400/1079
Proportion of 0-59 children who suffered from ARI in the last 12 months	74.84(74.49) 73.38 - 76.29	2602/ 3493	67.75 64.45 - 71.0	540/797	72.12 69.34 - 74.89	750/1040	72.79 69.07 - 76.5	420/577	82.67 80.36 - 84.97	892/1079
Taking children with ARI for treatment at the health facility (Among children who suffered from ARI during last 12 months)										
Type of health facility where the child was taken for treatment		*n=2594*		*n=538*		*n=749*		*n=418*		*n=798*
Nowhere	15.11(14.3) 13.72 - 16.51	371	7.62 5.29 - 9.96	41	12.42 9.99 - 14.85	93	18.18 14.36 -22.00	76	18.11 15.52 - 20.70	161
Government health facilities	4.02(4.12) 3.24 - 4.79	107	5.76 3.70 - 7.82	31	4.41 2.87 - 5.94	33	4.31 2.24 - 6.37	18	2.81 1.67 - 3.96	25
Private qualified facility/practitioners	23.1(23.59) 21.46 - 24.74	612	24.72 20.98 - 28.46	133	16.42 13.70 -19.14	123	22.49 18.37 - 26.61	94	29.47 26.42 - 32.52	262
Private unqualified practitioners incl. spiritual or religious healer	56.9(56.86) 54.98 - 58.83	1475	58.55 54.29 -62.81	315	65.55 62.08 - 69.02	491	54.78 49.89 -59.68	229	49.49 46.15 - 52.84	440
NGO/services facilities	0.86(1.12) 0.49 - 1.24	29	3.35 1.73 - 4.96	18	1.2 0.35 - 2.05	9	0.24 -0.35 - 0.83	1	0.11 -0.16 - 0.39	1
Proportion children taken somewhere or consulted for treatment of ARI	84.89(85.7) 83.49 - 86.28	2223/ 2594	92.38 90.04 -94.71	497/538	87.58 85.15 - 90.01	656/749	81.82 78.00 - 85.64	342/418	81.89 79.30 - 84.48	728/889
Experience at the health facility										
Doctor or a health worker present at the time of visit										
Government health facility	99.47(99.07) 97.62 - 101.31	106/107	96.77 88.94 104.61	30/31	100 98.48 101.52	33/33	100 97.22 102.78	18/18	100 98.00 - 102.00	25/25
Private qualified health provider	99.55(99.49) 98.93 - 100.17	591/594	99.24 97.36 101.11	130/131	99.19 97.19 101.18	122/123	100 99.46 100.54	92/92	99.6 98.61 - 100.59	247/248
Private unqualified health provider	99.57(99.52) 99.19 - 99.94	1446/ 1453	99.04 97.80 100.28	309/312	99.59 98.93 100.26	488/490	99.56 98.48 100.64	227/228	99.76 99.18 - 100.34	422/423

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Proportion of children who had all prescribed medicines from the health facility										
Government health facility	43.61(43.81) 33.65 - 53.57	46/105	36.67 17.76 - 55.58	11/30	43.75 25.00 - 62.50	14/32	33.33 8.78 - 57.89	6/18	60 38.80 - 81.20	15/25
Private qualified health provider	50.89(52.45) 46.79 - 55.00	311/593	59.85 51.11 - 68.59	79/132	56.91 47.75 - 66.07	70/123	40.86 30.33 - 51.39	38/93	50.61 44.15 - 57.08	124/245
Private unqualified health provider	84.75(85.03) 82.86 - 86.64	1227/ 1443	84.19 79.97 - 88.42	261/310	78.94 75.22 - 82.65	386/489	84.44 79.49 - 89.40	190/225	93.08 90.53 - 95.63	390/419
Proportion of children for whom the health worker gave full explanation about illness										
Government health facility	44.05(42.06) 34.17 - 53.92	45/107	35.48 17.03 - 53.94	11/31	63.64 45.71 - 81.56	21/33	44.44 18.71 - 70.18	8/18	20 2.32 - 37.68	5/25
Private qualified health provider	60.61(63.07) 56.59 - 64.62	374/593	76.34 68.68 - 84.0	100/131	73.98 65.82 - 82.1	91/123	44.57 33.87 - 55.27	41/92	57.49 51.12 - 63.86	142/247
Private unqualified health provider	48.33(48.92) 45.71 - 50.95	702/1435	53.85 48.15 - 59.54	168/312	60.12 55.66 - 64.59	291/484	40.63 33.97 - 47.28	91/224	36.63 31.87 - 41.38	152/415
Satisfaction with the service provider										
Government health facility										
Proportion of children whose parents were satisfied with behaviour of doctor/health worker	95.68(96.26) 91.37 - 100.00	103/107	100 98.39 -101.6	31/31	96.97 89.6 - 104.3	32/33	94.44 81.08 - 107.8	17/18	92 79.37 - 104.63	23/25
Proportion of children whose parents were satisfied with the treatment	94.77(95.33) 90.09 - 99.46	102/107	100 98.39 - 101.6	31/31	96.97 89.6 - 104.3	32/33	94.44 81.08 - 107.8	17/18	88 00 73.26 - 102.74	22/25
Reason for being satisfied		*n=101*		*n=31*		*n=31*		*n=17*		*n=22*
Good doctor/staff available	13.73(11.88) 6.52 - 20.93	12	6.45 -3.81 - 16.71	2	12.9 -0.51 - 26.32	4	23.53 0.42 - 46.63	4	9.09 -5.19 - 23.38	2
Good facilities/services	4.05(3.96) -0.29 - 8.40	4	3.23 -4.61 - 11.06	1	0	0	5.88 -8.24 - 20.01	1	9.09 -5.19 - 23.38	2
Good treatment	75.45(76.24) 66.56 - 84.34	77	77.42 61.09 - 93.75	24	74.19 57.18 - 91.21	23	70.59 45.99 - 95.19	12	81.82 63.43 - 100.21	18
low cost/free treatment	3.4(4.95) -0.63 - 7.43	5	12.9 -0.51 - 26.32	4	3.23 -4.61 - 11.06	1	0	0	0	0
Good access/nearby	3.36(2.97) -0.65 - 7.37	3	0	0	9.68 -2.34 - 21.70	3	0	0	0	0
Reason for being dissatisfied		*n=3*		*n=0*		*n=0*		*n=1*		*n=2*
Treatment not good	72.09(66.67) 4.67 - 139.52	2	0	0	0	0	100 50.00 - 150.0	1	50 -44.30 - 144.30	1
Too expensive/can't afford	27.91(33.33) -39.52 - 95.33	1	0	0	0	0	0	0	50 -44.30 - 144.30	1
Private qualified health provider										
Proportion of children whose parents were satisfied with behaviour of doctor/health worker	98.01(97.99) 96.80 - 99.21	584/596	97.73 94.8 -100.7	129/132	98.37 95.73 - 101.0	121/123	97.85 94.36 - 101.3	91/93	97.98 96.03 - 99.93	243/248
Proportion of children whose parents were satisfied with the treatment	97(97.32) 95.55 - 98.46	574/595	97.73 94.8 - 100.7	129/132	99.19 97.2 - 101.2	122123	93.55 88.82 - 99.08	87/93	95.78 95.47 - 99.69	242/248

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Reason for being satisfied		*n=576*		*n=127*		*n=121*		*n=87*		*n=241*
Good doctor/staff available	20.79(22.22) 17.39 - 24.19	128	30.71 22.29 - 39.13	39	17.36 10.19 - 24.52	21	16.09 7.80 - 24.39	14	22.41 16.93 - 27.88	54
Good treatment	78.38(77.08) 74.93 - 81.83	444	68.5 60.03 - 76.98	87	81.82 74.53 – 89.10	99	81.61 72.89 - 90.32	71	77.59 72.12 - 83.07	187
low cost/free treatment	0.53(0.35) -0.15 - 1.22	2	0	0	0	0	2.3 -1.43 - 6.02	2	0	0
Good access/nearby	0.29(0.35) -0.24 - 0.82	2	0.79 -1.14 - 2.72	1	0.83 -1.2 - 2.85	1	0	0	0	0
Reason for being dissatisfied		*n=16*		*n=3*		*n=1*		*n=6*		*n=6*
Treatment not good	79.71(81.25) 56.88 - 102.54	13	100 83.33 - 116.67	3	0	0	83.33 45.18 - 121.5	5	83.33 45.18 - 121.49	5
Too expensive/can't afford	6.26(6.25) -8.73 - 21.26	1	0	0	100.0 50.0 - 150.0	1	0	0	0	0
No other choice	14.03(12.5) -6.11 - 34.17	2	0	0	0	0	16.67 -21.49 - 54.8	1	16.67 -21.49 - 54.82	1
Private unqualified health provider										
Proportion of children whose parents were satisfied with behaviour of doctor/health worker	97.97(98.06) 97.21 - 98.73	1415/ 1443	97.76 95.95 - 9.56	305/312	99.38 98.6 - 100.2	484/487	95.98 93.19 - 98.78	215/224	97.86 96.35 - 99.36	411/420
Proportion of children whose parents were satisfied with the treatment	96.79(97.03) 95.84 - 97.73	1396/ 1447	97.12 95.10-99.13	303/312	97.96 96.6 - 99.31	479/489	93.81 90.44 - 97.17	212/226	97.62 96.04 - 99.20	410/420
Reason for being satisfied		*n=1383*		*n=299*		*n=472*		*n=206*		*n=406*
Good doctor/staff available	14.76(15.18) 12.86 - 16.67	210	18.73 14.14 - 23.32	56	15.47 12.10 - 18.83	73	13.59 8.67 - 18.51	28	13.05 9.65 - 16.45	53
Good facilities/services	0.53(0.51) 0.11 - 0.95	7	0	0	0.21 -0.31 - 0.73	1	0.49 -0.71 - 1.68	1	1.23 0.04 - 2.43	5
Good treatment	80.38(79.83) 78.25 - 82.51	1104	76.25 71.26 - 81.24	228	81.14 77.51 - 84.78	383	82.04 76.55 - 87.52	169	79.8 75.77 - 83.83	324
low cost/free treatment	2.45(2.46) 1.60 - 3.30	34	2.01 0.25 - 3.76	6	1.48 0.29 - 2.68	7	2.43 0.08 - 4.77	5	3.94 1.93 - 5.96	16
Good access/nearby	1.88(2.02) 1.13 - 2.63	28	3.01 0.91 - 5.11	9	1.69 0.42 - 2.97	8	1.46 -0.42 - 3.33	3	1.97 0.50 - 3.45	8
Reason for being dissatisfied		*n=43*		*n=9*		*n=10*		*n=14*		*n=10*
Good doctor/staff not available	9.98(9.3) -0.14 - 20.11	4	0	0	20 -9.79 - 49.79	2	7.14 -9.92 - 24.21	1	10.00 -13.59 - 33.59	1
Poor facilities/services	1.2(2.33) -3.22 - 5.61	1	11.11 -14.98- 37.20	1	0	0	0	0	0	0
Treatment not good	74.09(72.09) 59.83 - 88.34	31	66.67 30.31 - 103.0	6	50 14.01 - 85.99	5	85.71 63.81 - 107.6	12	80 50.21 - 109.79	8
Too expensive/can't afford	3.24(4.65) -3.22 - 9.69	2	11.11 -14.98 - 37.2	1	0	0	0	0	10.00 -13.59 - 33.59	1
No other choice	11.49(11.63) 0.80 - 22.19	5	11.11 -14.98 - 37.2	1	30 -3.40 - 63.40	3	7.14 -9.92 - 24.21	1	0	0

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Cost of treatment of ARI										
Travel cost										
Government health facility										
Paid some cost	54.81(52.83) 44.86 - 64.75	56/106	51.61 32.41- 70.82	16/31	28.13 10.98 - 45.27	9/32	83.33 63.34-103.33	15/18	64.0 43.18 - 84.82	16/25
Mean amount paid in Pak Rs.	35.95 (38) 18.258 - 53.642	56	48.44 36.55 - 60.33	16	65.56 -18.62-149-7	9	27.6 14.34 - 29.28	15	21.81 14.34 - 29.28	16
Private qualified health provider										
Paid some cost	63.99(61.42) 60.04 - 67.95	363/591	38.93 30.20 - 47.66	51/31	50.41 41.09 - 59.74	61/121	71.47 61.99 - 61.48	66/92	74.90 69.29 - 80.51	185/247
Mean amount paid in Pak Rs.	58.409 (59.152) 40.291 - 76.528	363	61.90 34.9 - 88.9	51	78.34 51.8 - 104.9	61	48.49 29.8 - 67.2	66	55.87 40.72 - 71.01	185
Private unqualified health provider										
Paid some cost	16.11(16.62) 14.18 - 18.03	241/1450	18.59 14.11 - 23.07	58/312	12.45 9.42 - 15.47	61/490	14.98 10.12 - 19.84	34/227	20.9 16.9 - 24.91	88/421
Mean amount paid in Pak Rs.	55.752 (54.282) 22.488 - 89.017	241	27.69 22.56 - 32.81	58	80.71 -16.1 - 177.5	61	27.94 18.66 - 37.23	34	63.67 29.67 - 97.67	88
Treatment cost at the facility										
Government health facility										
Paid some cost	94.95(94.34) 90.31 - 99.59	100/106	93.55 83.29 - 103.8	29/31	93.75 83.80 - 103.7	30/32	100 97.22 - 102.8	18/18	92 79.2 - 104	23/25
Mean amount paid in Pak Rs.	34.28 (29.91) 11.94 - 56.63	100	9.379 0.56 - 19.32	29	65.23 14.8 - 145.3	30	33.94 5.2 - 62.7	18	6.57 0.96 - 12.17	23
Private qualified health provider										
Paid some cost	93.54(93.81) 91.46 - 95.63	546/582	96.12 92.41 - 99.84	124/129	95.93 92.04 - 99.83	118/123	92.31 86.28 - 98.33	84/91	92.05 88.41 - 95.69	220/239
Mean amount paid in Pak Rs.	292.24(280.56) 170.90 - 413.59	546	158.23 114.6 - 201.9	124	252.76 122.2 - 383.3	118	296.9 180.8 - 412.9	84	358.20 29.60 - 686.81	220
Private unqualified health provider										
Paid some cost	94.09(94.5) 92.84 - 95.34	1358/ 1437	95.78 93.37 - 98.19	295/308	96.69 95.00 - 98.39	468/484	89.73 85.53 - 93.93	201/224	93.59 91.13 - 96.05	394/421
Mean amount paid in Pak Rs.	99.02 (98.43) 80.12 - 117.93	1358	81.88 48.7 - 115.1	295	81.85 69.3 - 94.4	468	98.50 76.21 - 120.8	201	130.5 80.1 - 180.9	394
Cost of medicines or investigations outside the facility										
Government health facility										
Paid some cost	55.37(54.72) 45.44 - 65.31	58/106	61.29 42.53 - 80.05	19/31	60.61 42.42 - 78.79	20/33	66.67 42.11 - 91.22	12/18	29.17 8.90 - 49.43	7/24
Mean amount paid in Pak Rs.	197.69 (189.84) 78.40 - 316.99	57	177.33 110.0 - 244.7	18	169.6 68.7 - 270.4	20	252.33 62.2 - 566.8	12	172.86 97.52 - 248.20	7

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Private qualified health provider										
Paid some cost	52.71(51.79) 48.58 - 56.84	303/585	37.98 29.22 - 46.75	49/129	39.34 30.27 - 48.42	48/122	52.75 41.94 - 63.55	48/91	65.02 58.82 - 71.22	158/243
Mean amount paid in Pak Rs.	485.75 (474.36) 285.76 - 685.75	303	207.755 86.5 -329.0	49	219.23 153.8 - 284.6	48	477.8 254.6 - 701.0	48	633.53 301.9 - 965.2	158
Private unqualified health provider										
Paid some cost	14.17(14.02) 12.33 - 16.01	201/1434	14.94 10.79 - 9.08	46/308	20.54 16.83 - 24.25	99/482	12.95 8.33 - 17.57	29/224	6.43 3.96 - 8.89	27/420
Mean amount paid in Pak Rs.	250.96 (245.94) 179.88 - 322.03	201	145.1 58.6 - 231.6	46	251.62 129.9 - 373.3	99	191.03 105.2 - 276.9	29	455.9 132.1 - 779.8	27
Prevalence and cost on treatment of measles										
Proportion of children 10-59 months ever suffering from measles	18.62(18.51) 17.13 - 20.11	498/2690	15.01 12.00 - 18.02	86/573	17.4 14.74 - 20.06	142/816	17.06 13.53 - 20.60	79/463	22.79 19.89 - 25.69	191/838
Proportion of children 10-59 months suffering from measles during last 24 months	13.63(13.68) 12.31 - 14.94	368/2690	11.34 8.66 - 14.03	65/573	13.36 10.96 - 15.75	109/816	11.23 8.25 - 14.22	52/463	16.95 14.35 - 19.54	142/838
Among 10-59 children who suffered from measles during last 24 months										
Paid some cost for treatment of measles	63.71(63.84) 58.56 - 68.86	226/354	56.67 43.29 - 70.04	34/60	57.69 47.72 - 67.67	60/104	59.62 45.32 - 73.91	31/52	73.19 65.44 - 80.94	101/138
Mean amount paid in Pak Rs.	385.448(378.022) 297.504 - 473.392	226	391.8 51.65 - 731.9	34	475 333.8 - 616.3	60	437.6 236.3 - 638.9	31	297.5 179.7 - 415.3	101
Immunization of Children										
Who decides about immunizing the child (children 0-59 months of age)		*n=3473*		*n=785*		*n=1020*		*n=599*		*n=1069*
Mothers alone (incl step mother)	44.44(45.38) 42.77 - 46.11	1576	43.57 40.03 - 47.10	342	40.1 37.04 - 3.15	409	36.23 32.29 - 40.16	217	56.88 53.86 - 59.89	608
mother with father	33.01(34.18) 31.44 - 34.59	1187	47.64 44.09 - 51.20	374	36.67 33.66 - 39.67	374	33.39 29.53 - 37.25	200	22.36 19.81 - 24.90	239
mother not involved at all	22.55(20.44) 21.14 - 23.95	710	8.79 6.75 - 10.83	69	23.24 20.59 - 25.88	237	30.38 26.62 - 34.15	182	20.77 18.29 - 23.25	222
Mother decides or is involved in the decision	77.45(79.56) 76.05 - 78.86	2763/ 3473	91.21 89.17 - 93.25	716/785	76.76 74.12 - 79.41	783/1020	69.62 65.85 - 73.38	417/599	79.23 76.75 - 81.71	847/1069
Vaccine coverage										
No. children aged 12 to 23 months		652		136		203		114		199
Among children 12-23 months of age										
Proportion reported to have received BCG (TB) vaccine	81.42(81.68) 78.34 - 84.50	526/644	83.7 77.10 - 90.30	113/135	71 64.46 - 77.54	142/200	85.71 78.79 - 92.64	96/112	88.83 84.18 - 93.48	175/197
Proportion having BCG scar on the left upper arm	66.3(67.38) 62.29 - 70.31	376/558	76.11 67.80 - 84.41	86/113	50.57 42.86 - 58.29	88/174	71 61.61 - 80.39	71/100	76.61 69.97 - 83.25	131/171
Proportion reported to have received any DPT vaccine	80.36(79.59) 77.19 - 83.52	507/637	77.61 70.18 - 85.04	104/134	64.29 57.32 - 71.25	126/196	92.86 87.64 - 98.07	104/112	88.72 84.02 - 93.41	173/195

Indicator	District % wt (unwt) 95% CI	Based on	JAHANIA Unwt 95% CI	Based on	KABIRWALA unwt 95% CI	Based on	KHANEWAL unwt 95% CI	Based on	MIAN CHANNU unwt 95% CI	Based on
Proportion reported to have received full course of DPT vaccine	67.1(67.03) 63.37 - 70.83	427/637	64.93 56.47 - 73.38	87/134	45.41 38.18 - 52.63	89/196	75.89 67.52 - 84.26	85/112	85.13 79.88 - 90.38	166/195
Proportion reported to have received measles vaccine	65.01(65.04) 61.22 - 68.80	413/635	64.39 55.85 - 72.94	85/132	44.1 36.88 - 51.33	86/195	73.87 65.25 - 82.50	82/111	81.22 75.51 - 86.93	160/197
Mean age at which received measles vaccine	9.072 (9.102) 8.858 - 9.286	332	9.373 9.013 - 9.732	59	9.463 9.070 - 9.855	54	8.932 8.547 - 9.316	73	8.945 8.770 - 9.121	146
Proportion of children 10-59 months old reported to have received measles vaccine	69.74(69.54) 68.29 - 71.20	1920/ 2761	67.61 63.79 - 71.43	407/602	50.12 46.63 - 53.61	409/816	78.66 74.88 - 82.44	376/478	84.16 81.67 - 86.65	728/865
Proportion reported to have received at least one dose of polio vaccine during last 12 months *Among children 12-59 months of age*	99.74(99.75) 99.53 - 99.95	2750/ 2757	99.84 99.43 - 100.24	608/609	99.64 99.18 - 100.11	835/838	99.79 99.27 - 100.31	471/472	99.76 99.37 - 100.15	836/838
Proportion reported to have received at least one dose of polio vaccine during last 12 months *Among children 0-59 months of age*	97.36(97.45) 96.82 - 97.90	3440/ 3530	97.86 96.79 - 98.93	777/794	97.44 96.44 - 98.44	1028/ 1055	96.87 95.40 - 98.34	588/607	97.49 96.50 - 98.47	1047/ 1074
Reasons for not being vaccinated at all or only partially vaccinated		*n=782*		*n=192*		*n=366*		*n=96*		*n=128*
Carelessness on part of family members	9.73(9.46) 7.92 -11.54	74	5.21 1.80 - 8.61	10	8.47 5.48 - 11.46	31	8.33 2.28 - 14.38	8	19.53 12.27 - 26.79	25
Family members don't have time/no one to take	7.41(6.78) 5.81 - 11.54	53	6.25 2.57 - 9.93	12	3.28 1.32 - 5.24	12	18.75 10.42 -27.08	18	8.59 3.35 - 13.84	11
vaccination would cause harm to the child	8.54(8.18) 6.83 - 10.25	64	7.29 3.35 - 11.23	14	5.74 3.22 - 8.26	21	14.58 7.00 - 22.16	14	11.72 5.76 - 17.68	15
Lack of awareness/ misperception about schedule	13.13(11.89) 10.08 - 15.18	93	6.77 2.96 - 10.59	13	13.66 10.01 -17.32	50	20.83 12.19 - 29.48	20	7.81 2.77 - 12.85	10
No facility nearby/access issue	51.43(54.09) 42.42 -54.43	423	63.54 56.47 - 70.61	122	60.93 55.79 - 66.06	223	21.87 13.08 -30.67	21	44.53 35.53 - 53.53	57
Don't believe/useless/no tradition	8.04(7.93) 6.38 - 9.71	62	9.9 5.41 - 14.38	19	5.74 3.22 - 8.26	21	14.58 7.00 - 22.16	14	6.25 1.67 - 10.83	8
Family members don’t allow	0.55(0.64) 0.05 - 1.05	5	1.04 -0.65 - 2.74	2	0.55 -0.35 - 1.44	2	0	0	0.78 -1.13 - 2.70	1
Can't afford/poor	1.17(1.02) 0.47 - 1.86	8	0	0	1.64 0.20 - 3.08	6	1.04 -1.51 - 3.59	1	0.78 -1.13 - 2.70	1
Nutritional status of the child (Mid upper arm circumference MUAC)										
Proportion of 0-59 months old children perceived by their mothers to be normal or big for their age	91.4(91.75) 90.46 - 92.33	3247/ 3539	93.36 91.57 -95.15	745/798	91.8 90.09 - 93.51	963/1049	89.53 87.02 - 92.04	547/611	91.77 90.08 - 93.45	992/1081
Proportion of 0-59 months old children measured as malnourished (MUAC < 12.5 cm)	13.82(13.95) 12.54 - 15.10	400/2867	15.37 12.51 - 18.24	99/644	14.39 11.98 - 16.79	124/862	13.71 10.58 - 16.84	68/496	12.6 10.33 - 14.87	109/865

Annex 6
Main indicators from community profiles and LHW interviews

Table 1. Indicators from community profiles

Indicator		Number of communities
Total number of communities visited		37
Urban communities		6
Rural communities		31
Garbage disposal system		
Communities with a system for removing garbage from individual households		4/37
Communities with a government system for removing garbage from the community		3/37
Frequency of removal of garbage by the government system		*(n=3)*
	Daily	2
	Less frequently than once in a month	1
Communities with a proper method for disposal of garbage (including those with government system)		23/36
Communities with large amounts of garbage piled in the streets		34/35
Communities with large amounts of human/animal excreta in the streets		30/34
Sewerage system		
Communities with a government sewerage system		18/36
Communities with a better sewerage system		10/36
Communities with large amounts of stagnant water/ sewage in the streets		15/33
Drinking water		
Communities with sweet ground water		29/37
Availability of health facilities		
Within 5 km		
Availability of a health facility		*(n=37)*
	Government	31
	Private	33
	Any (government or private)	36
Availability of an evening/24 hr health facility		*(n=37)*
	Government	9
	Private	31
	Any (government or private)	32
Within 1 km		
Availability of a health facility		*(n=37)*
	Government	7
	Private	30
	Any (government or private)	31
Availability of an evening/24 hr health facility		*(n=37)*
	Government	3
	Private	24
	Any (government or private)	25
Availability of immunization services		
Availability of a health facility with immunization services for children within 5 km		*(n=37)*
	Government	31
	Private	3
	Any (government or private)	31
Availability of a health facility with immunization services for children within 1 km		*(n=37)*
	Government	7
	Private	2
	Any (government or private)	9

Indicator	Number of communities
Usual place for people in the community to take their children to be immunized	*(n=33)*
Government health facility	4
Vaccination team visit at home	29
Communities where people take their children to a health facility for immunization	4/33
Communities visited by a vaccination team/person for routine immunization	35/37
Frequency of visit by a vaccination team to the community for routine immunization	*(n=37)*
Never visited	2
At least once every month	14
Not every month but at least once every 6 months	19
Not every six months but at least once in a year	1
Less frequent than once in a year	1
Period since last visit by a vaccination team for routine immunization	*(n=35)*
Never visited	2
Last visit with in a month	21
More than one month, but with in the last 6 months	11
More than 6 months , but with in last year	1
Polio campaign	
Communities with a Polio Campaign/Day celebrated within last one month	19/34
Number of polio campaign/days in the community in the last 12 months	*(n=37)*
2	2
3	3
4	2
5	1
7	1
8	1
10	2
12	3
95 (yes not specified)	22
Community organization	
Communities with any NGOs/CBOs/voluntary organizations/committees	5/37
Communities with any women organization	0
Communities with any existing CCB	1/37
Communities with any project done by a CCB	0

Table 2. Indicators from LHW interviews

Indicator		Number of LHWs
General information		
Total number of LHWs interviewed		29
Age distribution of LHWs		*(n=29)*
	18-30 years	18
	31-40 years	9
	41 years and above	2
Formal education level		*(n=29)*
	Less than 10th grade	14
	Up to 10th grade	13
	More then 10th grade	2
Period since started working as an LHW		*(n=27)*
	Less then one year	4
	More then a year up to 5 years	9
	More then 5 years up to 10 years	13
	More then 10 years	1
Training of LHWs		
Period since received initial training		*(n=26)*
	Within last one year	5
	More than a year but within last two years	8
	More than two years ago	13
LHWs receiving any further refresher training		17/29
Period since received refresher training		*(n=17)*
	Within last three months/still going on	11
	More than three months but within the last six months	1
	More than six months but within the last one year	1
	More than a year but within last five years	3
	More than five years ago	1
Household visits		
Number of households covered by LHWs		*(n=28)*
	150 or less households	8
	More than 150 households	20
Factors that would aid LHWs to visit the households (multiple responses recorded)		*(n=28)*
	Nothing needed	25
	Community support	2
	More medicines/equipment	1
	Provide transport	1
	More LHWs/fewer households per LHW	-
Supervisory support		
Frequency of visit by a supervisor		*(n=29)*
	Once a month or less frequently (including “no one visits”)	25
	More than once a month	4
LHWs visited by a supervisor within last one month		14/22
Knowledge and practices about immunization		
LHWs that could mention at least one correct illness prevented by immunisation		28/29
LHWs that have heard about any bad effects of immunization		11/29
Type of bad effects of immunisation heard by LHWs		*(n=29)*
	Nothing	18
	Actual side-effects	8
	Incorrect perceptions	2
	No effect of vaccine	1

Indicator	Number of LHWs
Source from where heard about bad effects of immunization	*(n=11)*
Family/neighbours, (including knew myself)	3
Doctor/other health workers/health facility	3
During training/material	3
During household visits (from parents)	2
Advice given by LHWs to mothers and care givers about immunization of their children	*(n=29)*
Important to immunize	23
Illness protection	5
Get vaccination form birth	1
Information provide by LHWs to mothers/care givers about immunization (multiple responses recorded)	*(n=29)*
Importance and benefit	24
Schedule/follow schedule/ follow rules	4
Nothing	1
Main reasons as reported by LHWs for some children not being immunized (multiple responses recorded)	*(n=29)*
Carelessness	12
Family problem/migration	5
No reason	4
Lack of awareness	3
Wait for mobile team/team does not come	3
Don't believe in it	2
Not allowed	2
Don't have time/no one to take	1
Fear of side effects	1
Suggestions to help ensure that all children get immunized (multiple responses recorded)	*(n=29)*
Provide information/awareness	10
Mobile teams	6
Facility nearby/transport	4
Nothing	2
Mare staff/vaccinators/train LHWs	2
Ensure vaccine availability/generator/electricity	2
Knowledge and practices about childhood diarrhea	
LHWs mentioning at least one correct reasons for diarrhoea among children 0-5 years	27/28
LHWs thinking that child should be given more fluids than usual during diarhoea	29/29
LHWs thinking that child should be given more or same amount of food than usual during diarhoea	26/29
Advice given by LHWs to the mothers about preventing diarrhea in children (multiple responses recorded)	*(n=29)*
Hygiene/cleanliness	26
Nutrition/food	9
More fluids/ORS	5
Advice given by LHWs to the mothers about treating diarrhea in children (multiple responses recorded)	*(n=29)*
More fluids/ORS	28
Nutrition/food	8
Contact doctor	8
Hygiene/cleanliness	2
LHWs thinking that children suffering from diarrhea should be given anti-diarrhoeal drugs	22/29
Knowledge and practices about childhood Acute Respiratory Infections (ARI)	
LHWs telling mother at least one correct information about ARI recognition	28/29
Advice given by LHWs to the mothers about treating a child with ARI (multiple responses recorded)	*(n=29)*
Provide medicine (co-trimoxazol/paraceutamol syrup)	22
Take to Doctor	14
Protect form coldness	3
Contact Doctor	2
Breast feeding	1
Give eggs and honey/ hot foods	1

Annex 7. Main themes from community focus group discussions

Theme	Male	Female
Total number of focus groups	23	23
Urban	4/23	4/23
Rural	19/23	19/23
Most important problem in relation to child health in the community		
No problem	1/23	0/23
Lack of staff/bad behaviour of staff at health facility	3/23	7/23
Lack of medicines at the health facility	9/23	0/23
Poor services/management at the health facility	2/23	2/23
Expensive/extra payments at the health facility	1/23	1/23
Health facility too far/difficult access	13/23	12/23
Poor sanitation/unhygienic conditions in the community	19/23	13/23
Lack/poor quality of drinking water in the community	2/23	5/23
Specific diseases such as malaria/diarrhoea/ARI/skin diseases	4/23	18/23
Group agreed that children seem to get more diarrhoea if their family does not use a latrine	19/23	19/23
Suggestions for helping households to install and use latrines		
Government should help	5/23	15/23
Financial/material technical support to communities from outside	20/23	18/23
Raise awareness about importance benefits of latrines	10/23	4/23
Self help/already have latrine	8/23	0/23
Provide water supply/sewerage system	6/23	3/23
What can people in the community do install and use latrines?		
Can't do anything	17/23	23/23
Collective effort/self help	8/23	6/23
Make each other aware about importance/benefits	3/23	1/23
Collect funds/contributions within community	7/23	4/23
Provide material/labour	1/23	0/23
What can be done by the government to help communities install and use latrines?		
Govt. does not help	2/22	2/23
Financial/material/technical help	21/22	27/23
Construct latrines for us	10/22	1/23
Create awareness	8/22	2/23
Provide sewerage/water supply system	8/22	6/23
Create economic opportunities/employment	0/22	4/23
Reasons for mothers to give extra fluid to children during diarrhoea		
To avoid dehydration/ deficiency of water in the child	23/23	23/23
Child may die if water is not given	7/23	10/23
That’s the only thing needed to manage diarrhoea/we won’t have to go to the doctor	0/23	1/23
Child thirsty/ demands water frequently	0/23	1/23
They are aware about the importance of giving extra fluid during diarrhoea	0/23	0/23
Reasons for mothers who don’t give extra fluid to the chills during diarrhoea		
Due to lack of awareness / illiteracy	20/23	22/23
Mothers don’t have time to think about it	5/23	5/23
Misconception about giving extra fluid during diarrhoea	12/23	13/23
Due to bad quality of drinking water	2/23	3/23
Such mothers are careless	9/23	10/23
No such mother as all give extra fluid to their children during diarrhoea		
Due to lack of awareness / illiteracy	0/23	0/23
Best person in the community to convince mothers about giving extra fluid to the child during diarrhoea		
No one in the community/only God can convince	1/23	7/23
Doctor/health department	11/23	10/23
Community leader/influential/Pesh Imam	16/3	13/23
Parents/family members	20/23	11/23

Theme	Male	Female
NGOs/social workers/teams from outside	3/23	4/23
Community women to each other	3/23	4/23
LHW	15/23	18/23
Other ways to convey such messages to mothers		
Pesh Imam in Friday sermon/prayers	3/23	2/22
Media/poster/pamphlet	25/23	20/22
Community meetings/events	3/23	2/22
NGOs/Social workers/trained community members/teachers/teams from outside	14/23	6/22
Through doctors and health workers	14/23	20/22
Community centres from info	4/23	1/22
Suggestions for improving household environment to prevent children's exposure to smoke from fuel and smoking		
Kitchen should be made away from the place of sitting/sleeping in home	15/23	13/23
Alternative fuels - If gas is made available then there would be no smoke	18/23	17/23
Smoking of cigarettes should not be done inside home	23/23	22/23
Cooking should be done when children were in school or not at home	3/23	10/23
Outlets to exit smoke out of kitchen/home	21/23	19/23
Create awareness about proper ventilation and hazards of smoky environment	3/23	3/23
What can householders and people in the community do improve household environment?		
Nothing	13/23	15/23
Form committee to create awareness	3/23	5/23
Separate cooking area/keep children away from cooking area	15/23	5/23
Use gas/alternate fuel with less smoke	4/23	6/23
Control smoking	10/23	9/23
Proper ventilation for smoke exit from kitchen/house	12/23	11/23
What can be done by the government/ NGOs to help communities for improving household environment?		
Nothing	4/23	1/23
Provide gas	15/23	21/23
Awareness about hazards of smoking	10/23	6/23
Legislation to Ban smoking	21/23	23/23
Provide funds to construct separate kitchen/cooking area, ventilation	16/23	21/23
Reasons why children were not taken anywhere for treatment of ARI		
Poverty/too many children	23/23	23/23
Facility too far/No transport	16/23	16/23
No doctor/Bad behaviour of doctor	7/23	6/23
Medicines not available/poor quality of medicines	12/23	7/23
Lack of awareness/misconceptions/tradition/self medication	8/23	5/23
Careless/ignorant	2/23	6/23
Suggestions to encouraged /support parents so that they take their children to a health facility for treatment of ARI		
More/free/good quality medicines	14/23	22/23
Financial support/employment/control price	4/23	7/23
Health facility nearby/better roads	22/23	17/23
Awareness among people	5/23	4/23
Doctors available/better behaviour of doctors	11/23	13/23
Focus groups who parents who don't immunise fully understand the risk that they are taking	5/23	8/23
Reasons for those who don't understand the risk from not having their children immunized		
Illiteracy/lack of education	20/21	21/23
Don't take measles as a serious disease	8/21	4/23
No info about the risk/no one comes to tell	3/21	2/23
People ignorant/careless	5/21	8/23
Reasons for those who understand the risk, but still are unable to get their children immunized		
Lack/poor immunization services/no mobile team	17/23	13/23
No transport/roads	3/23	5/23
Poverty	9/23	6/23

Theme	Male	Female
Carelessness/no tradition/women not allowed	14/23	16/23
Misconceptions about vaccination/fear of side effects/family planning	8/23	10/23
No time to take child for vaccination	2/23	10/23
Suggestions to help parents to have their children immunized		
Nothing would help/no need	0/23	1/23
Send mobile vaccination teams	18/23	17/23
Better access to health facility/nearby/transport/employment	5/23	17/23
More staff at health facility	1/23	3/23
Create awareness about immunization	21/23	19/23
More vaccines/use of disposable syringe/stop corruption	1/23	2/23