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# Evaluation of a Community Health Worker Project in Three Guatemalan Villages

**December 20, 2007**

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**ABSTRACT:**

*While community health care workers (CHCW) are being implemented in several developing countries, there is little information as to their effectiveness in reducing childhood malnutrition and mortality. Our study was conducted in three Guatemalan villages and aimed to investigate trends in utilization of the CHCWs and whether or not they are correlated with either the socio-economic status (SES) of the caregiver or the care receiver, as it may have implications for how CHCWs are chosen in the future. We found that in larger more suburban villages CHCWs were utilized less often, and were not necessarily serving those in the greatest need, while in the rural village surveyed CHCWs did seem to visit those of the lower SES with greater frequency. There was no correlation between the SES of the CHCW and their propensity to visit people of the same or different SES.*

**INTRODUCTION:**

In 1977 the World Health Assembly (WHA) decided unanimously that the target of member governments and the World Health Organization (WHO) should be "the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life." Particularly strong movements have been made toward a more communally based primary health care approach, in order to achieve this goal.[1] Primary health care, as defined by WHA documents, emphasizes health education, environmentalism, treatment of common diseases with inexpensive and easily obtainable medications, and the empowerment of citizens through education and basic medical training needed to treat common diseases. The following year (1978), an international conference of WHO/UNICEF promoted the use of lay auxiliary health workers or CHCWs as one component to help achieve the goals set out by the WHA.

Guatemala is a developing nation with the third highest child mortality rate in the Western hemisphere—43/1,000 people—compared to 7/1,000 people in the United States.[2] Past national campaigns have elicited major improvements in certain areas of

health care in Guatemala over the past twenty years. For example, a major immunization campaign begun in 1987 increased vaccination from 23% in 1987 to 96% (tuberculosis) and 81% (diptheria/pertussis/tetanus and measles) in 2005.[2; 3] However, in children under five years old, diarrhea and pneumonia are the leading causes of death. Estimates show that nearly one in five children under the age of five develops an acute respiratory infection each year. Of these, less than two thirds received care from a health care provider.[2] Many of the pneumonia cases are bacterial infections secondary to a viral upper respiratory infection. Further, less than a quarter of children with diarrhea receive oral rehydration therapy. Both oral rehydration solution and antibiotic treatment for bacterial pneumonia have been well established to improve mortality rates in the cases of diarrhea and upper respiratory infections.[4; 5] Additionally, malnutrition is a major problem in Guatemalan children. Nearly a quarter of Guatemalan children under five are considered to be underweight, and almost half suffer from moderate to severe stunting.[2]

Following the end of a decades-long civil war in 1994, the government of Guatemala began to restructure its health system, with the goal of improving not only the deleterious effects of disease, but also their fundamental causes. This Comprehensive Health Care System (SIAS), which is currently being implemented, aims to provide basic health care to the entire population that is without access, using existing resources, and community organization and participation[3]. One branch of the SIAS has been dedicated to implementing the Pan American Health Organization program's *Atención Integrada a las Enfermedades Prevalentes de la Infancia* (AIEPI) community health worker training program. Unlike traditional health personnel, these volunteers work closely with the community. They are trained, by a health team, in several aspects of health care,

including prenatal care, vaccinations, control of acute respiratory infections and diarrheal diseases in children, and emergency and acute disease care.

Our group employed a modification of the AIEPI program, implemented by a previous group led by Dr. Angelo Tomedi at UNM. This modified program, developed by UNICEF/PAHO, focuses on addressing the leading causes of morbidity and mortality in children in Guatemala – namely, pneumonia, diarrhea, and malnutrition. In 2002 this group, with the assistance of the University of San Carlos medical school in Guatemala, began to train CHCWs in several communities in Guatemala. Needs assessments in the communities were conducted prior to training community health care workers. To date, community health care workers have been trained in the communities of: Pasac Segundo, Las Majadas, Loma Linda, and Chuiziribal.

Evaluations of these programs have yet to be conducted and we feel that it is equally important to determine whether CHCWs are making a difference in mortality rates, malnutrition, and feeding practices; and whether they are helping the population that is most underserved. Additionally, previous evaluations of community health care worker programs have been limited to presence of midwives or birth attendants, family planning and birth control distribution programs, prenatal care and breastfeeding practices, all of which have yielded positive results.[6; 7; 8; 9; 10]

The purpose of our research project is to study which individuals in the community are utilizing the CHCWs and whether or not it is related to either the socioeconomic status of the recipients of care or the CHCWs themselves. Specifically, we are interested in determining whether the individuals with the greatest need, those with low socio-economic status (SES) are receiving care from the CHCWs as knowledge

of this data may alter the selection process of CHCWs in the future. Although research in Canada and Scotland has shown that there is no correlation between General Practitioner Physician visitations and SES, this question has yet to be studied in developing countries as it relates to community health care workers.[11; 12]

**RESEARCH QUESTIONS:**

1) Is there a correlation between frequency of use of CHCWs and socio-economic status in families with children under age five?

2) Does the socioeconomic status of the CHCW correlate with the socioeconomic status of the families that she sees most frequently?

**MATERIALS AND METHODS:**

The study was conducted in the villages of Pasac Segundo, Chuiziribal, Chicovix, and Loma Linda, all of which are located in the state of Quetzaltenango, Guatemala. Loma Linda is an isolated rural village that is a long distance from the city of Quetzaltenango. The other three villages are located in the municipal district of Cantel, and will be referred to collectively by that name. These villages are in much closer proximity to the city of Quetzaltenango.

Working in two teams guided by previously trained CHCWs, 204 households were visited and surveyed. Generally, either the mother or primary caretaker of the family was interviewed. Two questionnaires were used: one to record household data, and one to record child data (Appendix A and B). Specific questions were asked to determine both the SES of the household and the frequency of visitation by the CHCW; this portion of the questionnaire is based on a study of SES previously conducted in Guatemala, and uses questions directly from that study [13].

Additionally, seven of the eight CHCWs who had been previously trained as CHCWS were interviewed, and the same questions asked to determine SES of the CHCW. The CHCW interviews also included questions to assess subjective successes and difficulties with the program. Data was recorded on paper forms by each research team and later entered on laptop computers using EpiInfo software. Data analysis was completed using SAS statistical software. Statistical tests were done using Fisher's exact test.

The study protocol was approved by the Human Research Review Committee at the University of New Mexico. Informed consent was obtained from all participants.

**RESULTS:**

166 households were visited in Cantel, and 38 in Loma Linda. In Cantel, 22 of the 166 households (13%) were visited by a CHCW, compared to 20 of the 38 households (53%) in Loma Linda. This was a statistically significant difference ($p < .001$)

**Is there a correlation between frequency of use of CHCWs and socio-economic status in families with children under age five?**

In Loma Linda, 9 of the 13 households (69%) in the poorest SES quintiles were visited by a CHCW, as compared to 3 of 15 households (20%) visited in the highest SES quintiles. These results were statistically significant (p= 0.006, Table 1).

In Cantel, on the other hand, there was no statistically significant difference

**Table 1: Number of CHW Visits by Subgrouped SES Quintile for Loma Linda**

| N=38 households | Quintile (1=poorest 20%, 5=richest 20%) (Column Percents) | | |
|---|---|---|---|
| Number of CHW visits in past 6 months | 1 & 2* n (%) | 3 n (%) | 4 & 5* n (%) |
| No visits | 4 (31%) | 2 (22%) | 12 (80%) |
| 1 or more visit | 9 (69%) | 7 (78%) | 3 (20%) |

p-value = 0.006

The number of households surveyed was divided quintiles according to corresponding SES, with quintile 1 containing the poorest 20% of households and quintile 5 containing the richest 20%. SES quintiles 1 and 2 are combined to form the lower SES subgroup. SES quintiles 4 and 5 are combined to form the upper SES subgroup

between the quintile groups with regard to frequency of CHCW visits and SES of the household (p=0.91, Table 2).

**Table 2: Number of CHW Visits by Subgrouped SES Quintile for Cantel**

| N=166 households | Quintile (1=poorest 20%, 5=richest 20%) (Column Percents) | | |
|---|---|---|---|
| Number of CHW visits in past 6 months | 1 & 2* n (%) | 3 n (%) | 4 & 5* n (%) |
| No visits | 59 (88%) | 27 (87%) | 55 (85%) |
| 1 or more visit | 8 (12%) | 4 (13%) | 10 (15%) |

p-value = .91

The number of households surveyed was divided quintiles according to corresponding SES, with quintile 1 containing the poorest 20% of households and quintile 5 containing the richest 20%. SES quintiles 1 and 2 are combined to form the lower SES subgroup. SES quintiles 4 and 5 are combined to

Data were also collected regarding number of visits that a caretaker made to a CHCW in the previous six months (as opposed to number of times a CHCW visited a household), to assess whether the community was utilizing CHCW services when a child was acutely ill. There was a significant difference in number of visits to CHCWs between communities. In Loma Linda, 47% of children surveyed had visited a CHCW in the previous six months. In contrast, only 5% of children surveyed in Cantel had visited a CHCW (p<0.001, Table 3).

**Table 3: Child taken to CHW due to illness, by Community (N=204)**

| In past 6 months, have you taken your child to a CHW due to illness? | Cantel n (Col %) | Loma Linda n (Col %) |
|---|---|---|
| Yes | 9 (5%) | 18 (47%) |
| No | 156 (95%) | 20 (53%) |

p-value < .001

When households of children who visited CHCWs were subgrouped by their SES, households of lowest SES in Loma Linda tended to take their children to CHCWs more

than those of highest SES; however, the difference was not significant (p=0.09, Table 4). In Cantel, people of both lowest and highest SES seemed to visit CHCWs in nearly equal numbers; again, the difference was not significant (p=0.56, Table 5)

**Table 4: Taken child to CHW due to illness by SES Quintile for Loma Linda (N=38)**

| In past 6 months, have you taken your child to a CHW due to illness? | Quintile (1=poorest 20%, 5=richest 20%) (Column Percents) | | | | |
|---|---|---|---|---|---|
| | 1<br>n (%) | 2<br>n (%) | 3<br>n (%) | 4<br>n (%) | 5<br>n (%) |
| Yes | 4 (57%) | 3 (50%) | 7 (78%) | 1 (17%) | 2 (22%) |
| No | 3 (43%) | 3 (50%) | 2 (22%) | 5 (83%) | 7 (78%) |

p-value = 0.09

**Table 5: Taken child to CHW due to illness by SES Quintile for Cantel (N=166)**

| In past 6 months, have you taken your child to a CHW due to illness? | Quintile (1=poorest 20%, 5=richest 20%) (Column Percents) | | | | |
|---|---|---|---|---|---|
| | 1<br>n (%) | 2<br>n (%) | 3<br>n (%) | 4<br>n (%) | 5<br>n (%) |
| Yes | 2 ( 6%) | 2 ( 6%) | 0 ( 0%) | 2 ( 6%) | 3 (10%) |
| No | 31 (94%) | 32 (94%) | 31 (100%) | 32(94%) | 28 (90%) |

p-value = 0.56

**Does the socioeconomic status of the CHCW correlate with the socioeconomic status of the families that she sees most frequently?**

In Cantel, two of the original three CHCWs continued to see patients in the area. All were included in the survey. In Loma Linda, four of the five CHCWs participated in the survey. The distribution of CHCW SES by quintile is shown in Table 6. There was

**Table 6: SES Quintile of Community Health Care Workers**

| | SES Quintile (1=poorest 20%, 5= wealthiest 20%) of Community Health Care Workers | | |
|---|---|---|---|
| | All (N=7) | Loma Linda (N=4) | Cantel (N=3) |
| Quintile | n (%) | n | n |
| 1 | 0 (0%) | 0 | 0 |
| 2 | 1 (14%) | 1 (25%) | 0 |
| 3 | 2 (29%) | 2 (50%) | 0 |
| 4 | 3 (43%) | 1 (25%) | 2 (67%) |
| 5 | 1 (14%) | 0 | 1 (33%) |

no correlation found between the SES of CHW and the SES of families seen (p=0.84, Table 7).

**Table 7: Comparison of SES of CHW and the Household they Visit (N=22)**

| | Quintile of household visited by CHW | | | | | Total |
|---|---|---|---|---|---|---|
| **Quintile rating of CHW** | **1** | **2** | **3** | **4** | **5** | |
| **1** | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | 1 | 1 | 1 | 0 | 1 | 4 |
| **4** | 1 | 1 | 1 | 1 | 3 | 7 |
| **5** | 3 | 2 | 1 | 3 | 1 | 10 |

p-value: 0.84

**CHCW Narratives:**

**Routine of visiting families**:

Loma Linda: One Loma Linda CHCW reported that they had divided the village into sections that would be served by each CHCW. Three of the four Loma Linda respondents replied that they prefer having people come to their houses when they need help. They reported having stopped visiting houses and giving nutritional advice because they were being asked for help and medications for adult health problems, for which they did not have training or medications. One Loma Linda CHCW reported that villagers occasionally would become angry because of this, and that a few times they had given antibiotics to adults.

Cantel: The CHCWs stated that they visited people mostly on weekends, to give nutritional advice. They reported that they focused on families with underweight children.

**Success of the program:**

Loma Linda: One CHCW reported that giving vitamins to the children had helped, especially as they were far from town, and at times had limited access to sufficient fruits and vegetables. One reported that there were enough CHCWs to serve the community, and success in using antibiotics and acetaminophen to treat both children and adults.
Cantel: Two CHCWs reported success with explaining proper use of medications. One CHCW stated that giving recommendations about nutrition was successful.

**Difficulties with the program:**

Loma Linda: Three of the four CHCWs interviewed reported lack of medications as a problem. One expressed a desire to have different medications to treat other common problems in the community, such as amoebas. One CHCW felt that distance from the health center, lack of vehicles, and economics was a problem. The same CHCW expressed a need for more knowledge and training.
Cantel: Two of the three CHCws interviewed also reported lack of medications as a problem. One expressed that there was a lack of CHCWs to serve so many people. Another stated that some community members did not want to accept their help because of different beliefs. One CHCW reported problems with measuring medications.

**DISCUSSION:**

Overall, Loma Linda CHCWs visited a greater percentage of households, visited lower SES households preferentially, and were consulted during acute illness more than the CHCWs in Cantel. There are a number of factors that can account for these

differences. Important among these are the difference in sizes of communities and number of CHCWs per population served.

Loma Linda is a small, isolated community, and encompasses only one village. Conversely, Cantel consists of several villages which are relatively spread apart geographically. Loma Linda also had a higher proportion of CHCWs per population than does Cantel. Adding to this burden, one of the previously trained CHCWs from Cantel had moved and was no longer working in the area.

There was no correlation found between the SES of the CHCW and SES of the households visited. However, the CHCW from Loma Linda who was reported (by questionnaire) as having visited the most households, declined to be interviewed. Consequently, her SES could not be assessed or used in the analysis. It is interesting to note that the CHCWs of Loma Linda belong to a lower SES overall than did those of Cantel.

Another reason that could contribute to the relatively greater success of the program in Loma Linda is that one CHCW reported that they had divided the village into sections that would be served by each CHCW. This was not reported in Cantel, nor would it have been feasible, for the geographic reasons described above.

It was felt by the students surveying the populations that the Cantel CHCWs, who were not indigenous to the area, could possibly have been acting for secondary gain and, at least in some instances, used their positions to curry favor with richer families in the community. It also seemed that Loma Linda was a much closer-knit community, with CHCWs who were native to that village.

During the time that this research was conducted, twelve more CHCWs were trained to work in the municipal district of Cantel. Most of these women were already working as *comadronas*, or midwives, and thus already had a proven interest in health of the community. Training more CHCWs, and maintaining a supportive relationship with the municipal health center, should increase the numbers of people being served by CHCWs, with the ultimate goal of decreasing under-five morbidity and mortality.

Finally, it is important to note that none of the CHCWs receive compensation for their services. Implementation of such a system might make this program more sustainable. It could also serve as an impetus for those working in Cantel to visit more households.

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## Appendix A

# CUESTIONARIO

Household No:____

I. DATOS IDENTIFICACIÓN

1. Nombre del niño; _____

2. Sexo: 1. M 2. F

3. Fecha de nacimiento: _____

4. ¿Cuántos meses cumplidos tiene? _____

5. ¿Sabe cuánto pesó su niño al nacer?

1. Sí
2. No sabe pero le dijeron que era normal (Pase a 7)
3. No sabe

6. ¿Pesó 5.5 libras (2.5 kilos) o más? 1. Sí 2. No

7. ¿Le da (dio) pecho a su niño o niña? 1. Sí 2. No

8. ¿Por cuantos meses le dio pecho su niño o niña? _____

9. ¿Qué alimentos le da (o le dio) a su niño o niña durante los primeros 6 meses?

1. Sólo le doy pecho (leche maternal), o le dí pecho hasta los 6 meses
2. Le di pecho por ___ meses, antes de comenzar con otros alimentos
3. No le di pecho; le di _____

10. ¿Qué alimentos le da (o le dio) a su niño o niña de las 6 a 8 meses de edad?

1. Caldos o sopas
2. Jugos
3. Refrescos
4. Incaparina
5. Alimentos machacados: (indique con círculo los que come): cereales; tortilla con frijol; yema de huevo; pollo; verduras; hierbas; frutas
6. Otros alimentos como _____

11. ¿Qué alimentos le da (o le dio) a su niño o niña de las 8 a 11 meses de edad?

1. Caldos o sopas
2. Jugos
3. Refrescos
4. Incaparina
5. Alimentos machacados (indique con círculo los que come): cereales; tortilla con frijol; huevos; yema de huevo; pollo; carne; verduras; hierbas; frutas
6. Otros alimentos como _____

12. ¿Qué alimentos le da (o le dio) a su niño o niña de las 12 a 24 meses de edad?

1. Caldos o sopas
2. Jugos
3. Refrescos
4. Incaparina
5. Todos los alimentos que come la familia (indique con círculo los que come): cereales; tortilla con frijol; huevos; pollo; carne; verduras; hierbas; frutas
6. Otros alimentos como _____

15. ¿Ha fallecido un niño/una niña menor de 5 años de su familia durante el año pasado?

1. Sí
2. No (Si la respuesta es NO pase a 14)

16. ¿Cuantos años (o meses) tenía el niño/la niña cuando ha fallecido? _____

17. Peso _____ (kg)

Talla _____(cm)

DE (peso por edad) _____

18. En los ultimos 6 meses quantas veces han visitado por una promatora de salud?

19. En los ultimos seis meses, ha tenido que llevar su nino a una promatora de salud porque su nino estuvo enfermo?

## Appendix B

Cuestionario del nino Household Nu:_____ Child Nu:_____

1. Nombre del niño; _____

2. Sexo: 1. M 2. F

3. Fecha de nacimiento: _____

4. ¿Cuántos meses ha cumplido? _____

5. ¿Sabe cuánto pesó su niño al nacer?

4. Sí
5. No sabe pero le dijeron que era normal (Pase a 7)
6. No sabe

6. ¿Pesó 5.5 libras (2.5 kilos) o más? 1. Sí 2. No

7. ¿Le da (dió) pecho a su niño o niña? 1. Sí 2. No

8. ¿Por cuantos meses le dio pecho su niño o niña? _____

9. ¿Qué alimentos le da (o le dió) a su niño o niña durante los primeros 6 meses?

4. Sólo le dio pecho (leche maternal), o le dio pecho hasta los 6 meses
5. Le dio pecho por ___ meses, antes de comenzar con otros alimentos
6. No le dio pecho; le dio _____

10. ¿Qué alimentos le da (o le dió) a su niño o niña de las 6 a 8 meses de edad?

7. Caldos o sopas
8. Jugos
9. Refrescos
10. Incaparina
11. Alimentos machacados: (indique con círculo los que come): cereales; tortilla con frijol; yema de huevo; pollo; verduras; hierbas; frutas
12. Otros alimentos como _____

11. ¿Qué alimentos le da (o le dió) a su niño o niña de las 8 a 11 meses de edad?

7. Caldos o sopas
8. Jugos
9. Refrescos
10. Incaparina

11. Alimentos machacados (indique con círculo los que come): cereales; tortilla con frijol; huevos; yema de huevo; pollo; carne; verduras; hierbas; frutas
12. Otros alimentos como _____

12. ¿Qué alimentos le da (o le dió) a su niño o niña de las 12 a 24 meses de edad?

7. Caldos o sopas
8. Jugos
9. Refrescos
10. Incaparina
11. Todos los alimentos que come la familia (indique con círculo los que come): cereales; tortilla con frijol; huevos; pollo; carne; verduras; hierbas; frutas
12. Otros alimentos como _____

13. Peso _____ (kg)

Talla _____(cm)

DE (peso por edad) _____

## Appendix C

Numero de la Casa_____ Nombre del evaulante: _____

Relacion a los niños _____

| | |
|---|---|
| 1. Nombre de la comunidad: | 2. Fecha de la entrevista: |
| 3. Numero de personas que viven en la casa: | 4. Numero de niños menores de cinco anos que viven en la casa: |

**SES**

5. De qué material es el piso o cuàl predomina más?
    1. Tierra
    2. Ladrillo de barro
    3. Madera
    4. Cemento
    5. Mosaico
    6. Otros (Especifique)

6. Cuántos cuartos tiene su casa? Anote número _____ (includes each room in house such as living room, kitchen, bedrooms, etc.)

7. Su casa tiene:
    1. electricidad? 1. Si Í 2. No Í
    2. radio? 1. Si Í 2. No Í
    3. television? 1. Si Í 2. No Í
    4. telefono?
    5. refrigedora? 1. Si Í 2. No Í

8. Algun miembro de la casa tiene:
    1. bicicleta? 1. Si Í 2. No Í
    2. motocicleta? 1. Si Í 2. No Í
    3. automobil? 1. Si Í 2. No Í

9. Tienen servicio sanitario en uso?
    1. Si
    2. No (Si la respuesta es no, pase a Pregunta No. 11)

10. Qué tipo de servicio sanitario tiene?

a. Letrina simple (Pozo Negro)
b. Letrina taza campesina/cierre hidráulico (sin tanque)
c. Inodoro (lavable) (Con tanque)  get better name for this

11. Qué hace normalmente con la basura en su casa?
    1. La quema
    2. La entierra
    3. La tira al patio
    4. La tira al solar baldio
    5. La tira al rio o quebrada
    6. La tira a la calle
    88. Otros (Especifique)

12. Usualmente dónde consiguen el agua para beber?
    1. Río  (river)
    2. Quebrada  (arroyo, brook)
    3. Nacimiento  (spring or source)
    4. Pozo communal  (common well)
    5. Pila (sink)
    6. Lavandero (wash house, washing place)
    7. Pozo Propio (own well)
    8. Agua Purificada (purified water)
    9. Llave Pública (public faucet)
    10. Llave Propia (own faucet)
    11. Pozo Privado (del vecino) (private well)
    88. Otros (Especifique)

11. Qué tratamiento dá al agua de tomar?
    1. Ninguno
    2. Hervido
    3. Clorado
    88. Otros (Especifique)

**ACCESO A SERVICIOS DE SALUD**

12. Cuando alguien de la casa se enferma, acuden en busca de atención?
    1. Si
    2. No (Si la respuesta es no, pase a 26)

13. A dónde acuden? encierre todos que aplican)
    1. Promotora/o
    2. Centro de Salud
    3. Hospital Publico
    4. Clinica Privada

5. Puesto de Venta?  Perhaps remove this
6. Otros (especificar)

14. Porqué razón usted o su familia no asisten a los centros de salud? (encierre todos que aplican)

1. Muy costoso
2. Muy largo
3. Permanece cerrado
4. No hay medicamentos
5. Mal trato por parte del personal de salud
6. Otros (Especifique)

15. Quantas veces han sido visitado por un(a) promotoro(a) de salud en los ultimos seis meses?

Anote un numero: _____

16. Como se llama el(la) promotor(a) de salud que les visita?

_____

17. En la visita, que hizo (la promotora)?  (Anote todos que aplican)

1. examino el/la nino/a
2. peso o midio su nino
3. Le dio consejo sobre la nutricion infantil
4. Le dio medicinas por una enfermedad
5. Otros (Especifique)

## Appendix D

**Direccion de la casa _____ Region que cubre _____**

**Nombre del promotor _____**

**Tiene responsabilidad por quantas familias _____**

1. Cuantas personas viven en la casa? _____

2. De qué material es el piso o cuàl predomina más?
    7. Tierra (dirt)
    8. Ladrillo de barro (brick)
    9. Madera (wood)
    10. Cemento (cement)
    11. Mosaico (tile)
    12. Otros (Especifique)

3. Cuántos cuartos tiene su casa? Anote número _____ (includes each room in house such as living room, kitchen, bedrooms, etc.)

4. Su casa tiene:
    6. electricidad? 1. Si 2. No
    7. radio? 1. Si 2. No
    8. television? 1. Si 2. No
    9. telefono? 1. Si 2. No
    10. refrigedora? 1. Si 2. No

5. Algun miembro de la casa tiene:
    4. bicicleta? 1. Si 2. No
    5. motocicleta? 1. Si 2. No
    6. automobil? 1. Si 2. No

6. Tienen servicio sanitario en uso?
    3. Si
    4. No (Si la respuesta es no, pase a Pregunta No. 21)

7. Qué tipo de servicio sanitario tiene?
    d. Letrina simple (Pozo Negro)
    e. Letrina taza campesina/cierre hidráulico (sin tanque)
    f. Inodoro (lavable) (Con tanque) get better name for this

8. Qué hace normalmente con la basura en su casa?
    1. La quema
    2. La entierra
    3. La tira al patio
    4. La tira al solar baldio
    5. La tira al rio o quebrada
    6. La tira a la calle
    7. Otros (Especifique)_____

9. Dónde consiguen el agua para beber?
    12. Río (river)
    13. Quebrada (arroyo, brook)
    14. Nacimiento (spring or source)
    15. Pozo communal (common well)
    16. Pila (sink)
    17. Lavandero (wash house, washing place)
    18. Pozo Propio (own well)
    19. Agua Purificada (purified water)
    20. Llave Pública (public faucet)
    21. Llave Propia (own faucet)
    22. Pozo Privado (del vecino) (private well)
    23. Otros (Especifique)

10. Qué tratamiento dá al agua de tomar?
    4. Ninguno
    5. Hervido
    6. Clorado
    7. Otros (Especifique)

**Evaluación del programa** (this section would be narrated and is not included in the epi info section—its part of an assessment of the program thus far)

A. Qué routinas tiene para visitar las familias? Con que frequencia visita las familias?

B. Con que cosas siente que ha tenido exito? Porque?

C. Con que cosas ha tenido dificultades? Porque?