Community Assessment of Resources and Healthcare Experiences

(CARE)

Alto Cayma Community

Arequipa, Peru

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According to 2006 estimates in the CIA World Factbook, 44.5% of the Peruvian population lives in poverty[1]. While poverty in Peru has been decreasing, underemployment and inflation remain challenges. Access to health care services has been identified as a significant problem for the indigenous people living in Peru. According to data from the 2007 National Census of Indigenous Peoples in a 2009 report by Amnesty International, 60% of people in communities covered by the Census lack access to a healthcare facility[2]. These estimates are likely to be low, as many communities of indigenous people living in the Andes have not been included in the Census[3]. Previous studies have demonstrated the need for more expanded primary and preventive care services to impoverished and marginalized populations to improve health outcome measures[4,5]. However, very few studies have been conducted that evaluate the access and utilization patterns of individuals living in peri-urban squatter communities of the large cities of Peru, such as Arequipa.

The healthcare delivery system of Peru is divided among five major systems. These include the military and police, SIS (a Medicaid-like system for low-income and vulnerable populations), MINSA (Ministerio de Salud, National), private clinics and Es Salud. Es Salud is a social security based health care program. For this reason, people that are covered under this program include all active workers who are social security members, independent workers, retirees, disabled persons, widows, orphans and workers and pensioners' spouses and children.

Es Salud offers a wide range of programs depending on the type or status of the worker. Services range from mobile hospitals and hospital camps to specialized centers for rehabilitation and transplant surgery. Because Es Salud is only offered to social security members, it generally does not cover those in poverty. The Armed and Police Forces health care serves about 3% of the population and another 3% use a private health care program Es Salud[6]. A majority of the country's poorer socioeconomic populations receive their care through MINSA and SIS funded clinics and hospitals. However, inequalities in healthcare services access and utilization exist amongst the poorest elements of Peruvian society[7].

The City of Arequipa is located about 1000 km southeast of Lima, Peru and has population in the city of more than 1,000,000. The community of Alto Cayma is found on the northern outskirts of Arequipa. Alto Cayma has a population of approximately 32,000. Inhabitants of the settlements in the community of Alto Cayma are primarily migrants from smaller mountain communities who have moved to Arequipa seeking employment and better living opportunities.

This study was jointly conducted by Health Bridges International, Inc. and faculty from the University of North Carolina Wilmington (UNC Wilmington) School of Nursing. Health Bridges International (HBI) is a non-governmental organization based in Portland, Oregon and has been working in Peru to create collaborative projects and support for the people of Peru for over 18-years. Students and faculty from UNC Wilmington have been going to the Alto Cayma area for clinical and cultural immersion experiences since 2004. The study provided a direct opportunity for undergraduate nursing students to participate in an international research experience.

Purpose/aims of the study. This cross-sectional descriptive survey study was designed to evaluate healthcare access and utilization patterns as well as objective and subjective barriers to healthcare in a series of squatter communities outside of the city of Arequipa, Peru. More specifically, the survey provides specific demographic and socioeconomic information on households within the community as well as information regarding patterns of healthcare utilization, awareness of area health clinics, and government and charity resources.

Findings from this study provide a snapshot of certain socioeconomic conditions of households in select neighborhoods of the Alto Cayma community, along with health access and utilization practices. This information will assist in the development of health interventions for this community, including meeting basic needs and expanded and appropriate delivery of primary health care services.

Hypothesis and study assumptions. The following hypotheses and assumptions guide this study:

1. Individuals living in the communities of Alto Cayma and the surrounding metropolitan area of Arequipa, Peru do not have access to adequate primary care services.
2. A lack of primary health care service utilization has led to greater overall disease burden in the communities' populations when compared to a cohort of individuals living in a more socioeconomically affluent matched community in Arequipa.
3. This usage pattern reflects individuals' learned behaviors, and is based on lack of knowledge of available resources and a proper understanding of "primary care" as a longitudinal medical model.
4. Poor, peri-urban squatter community populations are disproportionately uninsured.

5. A significant barrier to individuals seeking services is their lack of insurance and lack of knowledge regarding how to properly utilize free and low-cost healthcare options.

Research questions. The following research questions were addressed in this study:

1. What are the living conditions of the people in the Alto Cayma community, in terms of access to basic services such as water, sewage and electricity?
2. Do members of the community treat their water prior to consumption?
3. What is the demographic makeup of households in Alto Cayma (including size of household, income and education)?
4. What types of assistance (government or private) are households in Alto Cayma receiving?
5. Where do individuals in Alto Cayma seek healthcare and dental care services?
6. How frequently are health and dental care services accessed by members of the Alto Cayma community?
7. For what reasons do community members seek health and dental services?
8. What barriers exist to healthcare access and utilization in Alto Cayma?

Study population. Participants were recruited from the geographic areas that encompass the communities of Alto Cayma in the squatter settlements north of Arequipa, Peru. Many of these areas are in direct proximity to a Parish center run through the Missionary Society of Saint Paul. The Parish center provides a number of services to the community, including a day care facility, health clinic, community feeding program, and various sponsorship programs for children and families. Participants in the study were selected by means of a convenience sample of 800 families in the Alto Cayma Community (the sample represents 10% of the population, based on an estimate of family size of four). Participants who do not maintain a domicile residence in one

of the communities of Alto Cayma, or who are under the age of eighteen were excluded from this study.

Methods. *Recruitment Methods.* Announcements about the study were made at the parish center and at various local community meetings a few weeks prior to data collection, which occurred between March 11 and March 19, 2009.

Human Subject Protections and Consent Procedures. Permission from the UNC Wilmington Institutional Review Board (IRB) was obtained prior to data collection for the study. Additionally, all study staff (including data collectors and interpreters) received prior training in non-leading interviewing techniques and IRB training. An introductory information sheet was read to all potential survey participants through a Spanish language interpreter (see Appendix B). All survey questionnaires were conducted through a trained Spanish-English interpreter. Written informed consent forms were provided in Spanish. In instances where participants had literacy deficits, the informed consent was read to the participant by the interpreter. All participants were asked whether they understood the requirements and conditions for participation in the study prior to obtaining signed informed consent.

Data Collection Methods. Neighborhoods in Alto Cayma are designated in Sectors; some are named for the date in which they receive designation from the government. Data collection occurred in the following sectors in Alto Cayma: San Miguel; 13 de Enero, 1 de Junio; Santa Rosa; and Estrella. Data collection teams included an undergraduate nursing student from the UNC Wilmington, a volunteer translator/interpreter, and an HBI trained staff person. Data collection occurred in a central location within the community. A researcher developed instrument was used to collect demographic information and information about health access and

utilization practices. Student data collectors read the questions in English, which were then translated verbatim by the interpreter. Responses were obtained in Spanish and translated by the interpreter back to the student for recording on the survey form. The parish clinic provided staff to take blood pressure and weight measurements for individuals waiting to complete the survey; however collection of this information was not part of the study.

Data Analysis. Surveys were numbered and free of any personally identifying information. The survey data were cleaned and examined for data entry error and compiled in a spreadsheet.. A statistical analysis of the data was conducted using SPSS software for descriptive statistics and to examine associations between demographic information and patterns of health access and utilization.

Results. *Study Sample (Research Questions 1-5).*

Household Size and Makeup. The sample for the study included 455 households. The average number of members in each household was 4.64 (SD=1.782, range 1-11) with an average of 2.52 (SD= 1.172, range 1-8) adults and 2.12 (SD= 1.385, range 0-8) children in each home. The average age of the children in the home was 9.05 years of age. Data were not collected on the ages of adults in households. Of households participating in the survey, the gender distribution of children in the home was 51.2%, male and 48.7% female, which is consistent with national population level data [8]. See Table 1 for household demographic information.

Educational Attainment. Less than half of parents in the households surveyed have formal education beyond the primary level. Of reporting households, 27.5% of fathers' highest level of education was at the primary level, with 42.2% of fathers having formal education at the secondary level (see Figure 1). The majority of mothers in the household also reported low

levels of formal education; 56.2% of mothers have no formal education beyond the primary level, with 34.1% reporting formal education at the secondary level (see Figure 2). Conversely, more mothers reported having university level education than fathers, with 5.5% reporting having had some university education, compared to 4.4% of fathers. Nine percent of households reported that parents had never attended school, with mothers being almost three times as likely as fathers of having had no formal education (14.9% versus 4.8%) (see Table 2). A majority of (77.8%) household respondents indicated having children in the home who were attending school, suggesting that most of the school age children attend school.

Household Income. According to households participating in the study, there are an average number of 1.4 workers in the home (SD= 0.677, range 0-4). Accordingly, the number of total workers in the home was significantly correlated with approximate household income per day (R=0.399, p=0.000). Since many workers in Alto Cayma lack stable employment, much of their employment is day labor work. Survey participants reported an average of 5.2 days worked per week per worker. On the household level, households averaged zero to 28 hours per week worked across all workers (mean 7.2 hours per week per family). Average reported income per day was 28.46 Peruvian Soles or less than $10 USD per day worked (based on currency exchange rate as of October 21, 2009). See Table 3 for household income. While there is continued debate about how to correctly calculate poverty rates among different countries,[9,10] the World Bank commonly uses a rate of $1.25 USD per day as a measure of poverty in the developing world[11].

Even though reported day wages per household are higher (just under $10 USD/day) than World Bank defined poverty levels, wide variations among reported household income exist due to lack of stable employment. Monthly household income estimates and size of households

obtained in the study indicate that members of this community are living just above the World Bank defined poverty level ($150 USD/month for a family of four).

Access to Basic Services. Most households reported having access to electricity in the home (92.5%), although access to electricity may be only a rudimentary line from an electrical pole and only a single bulb or outlet. Access to potable water and sewer was less prevalent than access to electricity in the home. Only 43.5% of households report having water access in the home (see Table 4). The majority of households without running water rely on a public spigot (84%) or community well (7.4%), or purchase water (x.x%) (see Table 5). Furthermore, among participants with in-home water access, water is not available at all times of the day; about 31% of households have access to public water for five-hours per day or less (see Table 6).

While public water is not treated, 96.7% of respondents indicated that they treat water prior to consumption, with 84.8% indicating that they boil water prior to use. Other methods used to treat water include filtering (10.5%) and bleach or combination of boiling and bleach (0.2%) (see Table 7).

Language Spoken in the Home. While many Peruvians in Arequipa speak Quechuan, an indigenous Andean language, most households (91.2%) reported speaking Spanish as the primary language used in the home. Fewer than 9% of households reported Ayamara or Quechuan as the primary language spoken in the home.

Sponsorship/Assistance. Less than half (48.7%) of respondents indicated that children in the home were receiving sponsorship from either a governmental or private charitable organization. Of those receiving sponsorship, 53.8% received assistance through the Christian Foundation for Children and Aging (CFCA) program, which is managed through the parish center run by the

Missionary Society of Saint Paul and Father Alex Busuttil. The CFCA program operates in more than 24 developing countries and serves more than 300,000 children[12]. A lower percentage (37.2%) reported receiving support from the Vaso de Leche program. The Vaso de Leche is a Peruvian federal government program that was founded in 1985 to promote nutrition and support for mother and infants[13]. Other respondents reported receiving support from programs including Acercanderos (5.0%), Grupa Arcano (0.5%) and Prona (0.5%). Table 8 displays the distribution of sponsorship support.

Only 13.6% of respondents indicated receiving healthcare benefits from Seguro Integral de Salud (SIS), a health care program under the Ministry of Health (MINSA), which provides health care services to Peruvian citizens living in poverty or extreme poverty regardless of age. SIS also offers health care at minimal cost for those who can afford to pay something. If the individual earns less than about $235.00 USD per month, the cost is approximately $4.00 USD per month. If the individual earns less than $335.00 USD per month, the cost is approximately $7.00 USD per month. The same ranges apply for family coverage though the cost doubles to cover the entire family as long as the children are under age 18[14].

Given the average reported income by households surveyed in this study, many of the households would be eligible for SIS program services. Most respondents (73.4%) were aware of the government SIS program, however only 13.6% of the respondents and 47.4% of the children in the household reportedly received benefits from the SIS program. Of those reporting children enrolled in the program, the average number of children per household enrolled in SIS was 2.07 (see Table 9).

Healthcare Utilization Patterns (Research Questions 6-9). Of households surveyed, 32.1% of adults reported visiting a clinic or facility to seek healthcare 2-3 times per year. According to

study findings, children visit clinics for health care needs more often than adults. When asked about the frequency in which children in the home go to a clinic or facility for healthcare, 34.9% indicated that their children visit two to three times per year; 17.1% indicated a frequency of four to six times per year, and 8.6% reported that their children visit a clinic or healthcare provider more than ten times per year. However, lack of access to healthcare is clearly an issue for both children and adults in the Alto Cayma community: 20.7% of respondents indicated that their children visited a healthcare provider or clinic only one time a year or less and 31% of adults indicated that they visited a clinic once a year or less (see Figure 3).

Various reasons for the last healthcare visit to a clinic or facility were reported, with the most common ailments being upper respiratory conditions (24%) (cold, cough, sore throat, bronchitis or flu) and gastrointestinal symptoms (17.1%) (gastritis, stomach ache/infection, nausea/vomiting).

Type of Clinic Used. Types of clinics used by participants included MINSA clinics (42.6%), private clinics (36.0%), Es Salud clinics (6.2%) or other (2.0%). MINSA clinics were most frequently cited as being used for children's healthcare needs (51.8%) and included La Posta Bolognesi, La Posta Dean Valdivia, Sector 13, and La Posta San Jose. Of private clinics reported, an overwhelming number of respondents indicated using the Maria Madre de Los Missiones clinic in Alto Cayma (90%) to access healthcare services for children. Table 10 displays specific clinic locations used by respondents.

Dental Care Utilization. Among participants responding to the survey, 53.0% indicated that they received dental care; but 36.1% indicated that they only sought dental care when issues arise, such as a visible cavity. Only 3.7% of respondents indicated that they had visited the dentist for preventative services, such as cleaning or a checkup. The percentage of children receiving dental

care was similar to that reported by adults participating in the survey. According to survey respondents, 54.5% of children in the communities surveyed receive dental care services. Study findings indicate that higher percentages of children access dental services more frequently adult respondents: 39.0% of children accessed dental care services 2-3 times per year, compared to 26.6% of adult respondents (see Table 11). The percentage of children accessing dental services 4-6 times per year (10.8%) was roughly double that of adults (4.6%). This finding might be related to indications from some respondents that children accessed dental services through school programs. Table 11 also demonstrates the reported frequency of seeking dental care services by survey participants.

Emergency Care. When asked about access to emergency or urgent care, 86.6% of respondents indicated that they would know where to go if they were involved in an accident or injury (see Table 12). Of those stating they knew where to get emergency care, the greatest percentage of respondents indicated that they sought emergency healthcare services at a MINSA clinic (57.1%), with lesser percentages seeking care from private clinics (23.9%), and Es Salud clinics (3.6%). Numerous other options for emergency care were reported (see Table 13). Similar results were found when asked if they knew where to take their children in the event of an accident or injury (83.5%) (see Tables 14 and 15).

*Prescription Access***.** Consistent with the socioeconomic findings of low income, the percentage of respondents reporting access to prescription medications was low. Only 32.3% of respondents indicated that they would be able to fill an entire prescription (see Table 16).

Barriers to Access. Barriers to healthcare access are evident; 80.7% of respondents indicated having had a need to see a health care provider but not able to go to a clinic or hospital (see Table 17). Of these, lack of money was reported as the primary reason for not seeking care, with

80.4% respondents indicating that financial constraints as the primary reason for not seeking care. Other barriers to access identified included transportation difficulties and childcare or eldercare responsibilities. Some respondents cited more than one barrier.

Limitations. As with any study, limitations exist to prevent generalization of the study findings. Limitations of this study include limited sample size and use of a convenience sample. Possibilities for measurement error also exist, since an interpreter was used to administer the survey. Furthermore, respondents may not completely have understood questions being asked of them, given culturally different conceptualizations of health, health seeking behaviors, and health care utilization. These findings cannot be generalized to other communities within Arequipa or other areas of Peru.

Discussion. Barriers to healthcare are evident, primarily related to poverty and lack of income. Other barriers to be further explored include transportation needs, and lack of knowledge about available support programs and services. Additionally, more information is needed as to whether current healthcare programs in the area are functioning at maximum capacity and what resources for these programs may be needed. According to the 2007 National Census of Indigenous Peoples, 45.4% had no more than a first aid post[15]. This also seems to be the case in the Alto Cayma community as well, although respondents reported knowing where to go for emergency services. Whether appropriate access to emergency care is available was not addressed in this study. Reported conditions for which community members seek care indicate that when care is sought, it is primarily episodic, and not preventative in nature.

When seeking healthcare, community members reported use of MINSA posts, or clinics and use of private clinics, especially the Maria Madre de Los Missiones Clinic. Because of the pivotal role that the services offered by Missionary Society of Saint Paul and Father Alex

Busuttil play in meeting basic and spiritual needs for the community, use of the Maria Madre de Los Missiones Clinic by community members is not a surprising finding.

Other challenges in the area include lack of education among adults, and presence of unstable and low wage employment. Services to improve educational opportunities and job training would be beneficial in this community, especially for adult women. The role of maternal education and its impact on children's health status is well documented[16,17,18] and low educational attainment of women in these communities is especially troublesome.

Recommendations. Findings from this study indicate a need for additional access to basic public health services such as clean water and sewer, as well as, primary health care and dental services for individuals living the Alto Cayma Community. While access to healthcare and dental services for children is better than for adults in the community, additional services are needed to promote better access to primary healthcare. Given the low income status of the members of the community, financial constraints for accessing healthcare services are not surprising. Future studies should further explore the presence of other barriers to healthcare access, especially related to health seeking behaviors, and whether issues of trust are also a barrier to seeking care. Additionally, additional barriers to utilization of the SIS program need to be identified in future research studies.

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