

Comparative Analysis of Health Impact and Health Services Utilization in CLAS and Non-CLAS Primary Health Care Services in Peru

May 18, 2006

Revised and updated
April 22, 2009

By:

Laura C. Altobelli, DrPH, MPH
Peru Country Director
Future Generations
laura@future.org
www.future.org

Av. Primavera 2049, Surco, Lima 33 Peru
Tel. 511-436-9619, 436-9623

Citation:

Altobelli, Laura (2009) “Comparative Analysis of Health Impact and Health Services Utilization in CLAS and Non-CLAS Primary Health Care Services in Peru”, Lima, Peru: Future Generations.

Table of Contents

Table of contents

- I. Background
- II. Study question
- III. Materials and methods
 - a. Data utilized
 - b. Identification of sample populations
 - c. Definition of variables
 - d. Statistical analysis
- IV. Findings
- V. Discussion

Comparative Analysis of Health Impact and Health Services Utilization in CLAS and Non-CLAS Primary Health Care Services in Peru

Report on analysis of Peru DHS-2000 data

May 18, 2006

Updated April 22, 2009

I. Background

In 1993, Peru embarked on a major effort to address the problem of inequitable access to health care: 25 percent of the population had little access due to economic, cultural, and/or geographic barriers. The Basic Health for All Program (PSBPT) was established in 1993 with government funding to extend the network of primary health care (PHC) facilities to underserved areas. Within the administrative framework of PSBPT, the Shared Administration Program (SAP) was initiated as a pilot experience in 1994 to test a unique system of legalized community involvement in the administration of PHC services. The program has expanded to incorporate 32% of all government PHC facilities (2138 out of 6700) as of the year 2009. This PHC system functions within two parallel organizations. SAP is the top-down administrative framework in the MOH. Bottom-up components representing communities are private, non-profit civil associations legally inscribed in the official Public Registry, called “Local Community Associations for Health Administration” (CLAS Associations, or CLAS).

CLAS are composed of six elected community members and are governed by standardized legal norms and statutes which guide their roles, functions, and accountability to “co-manage” government PHC services. Government health budgets assigned to CLAS are deposited directly in a commercial bank account owned by the CLAS, and legally administered by the CLAS Association jointly with the health facility health director (who is legally registered as the CLAS manager and is the seventh CLAS member). The SAP co-management model has characteristics that differ from those of traditional public administration of primary health services in the following ways:

- It is a modernized model of public sector administration, incorporating private law into the management of public resources to improve quality, efficiency, and equity.
- It allows re-orientation of resources to local needs and priorities with legalized involvement of the community in decision-making and financial management.
- It offers flexibility and advantages in new administrative arrangements for human resources. Personnel management is improved through contracts under private sector law, providing incentives that stimulate better quality of care through job benefits such as insurance, retirement, and paid vacation time that other types of public sector contracts do not provide.
- CLAS Associations have an important role in planning and management of public resources according to Local Health Plans approved by regional health offices.
- CLAS are able to enter into legal agreements and contracts with municipalities and other public and private entities and can receive donations or transfers from third parties.

However, health facilities administered under the CLAS management model have suffered over the years from a variety of problems mainly emanating from deficiencies in MOH policy and financing, which have resulted in lack of adequate training, support and guidance to

CLAS from superior levels of the MOH. Specifically, the problems have been related to the following:

- lack of a definitive policy from the MOH that SAP was a priority program,
- central budget cuts that, among many other reductions, limited funds for supervision and training of CLAS,
- the accelerated expansion of the program in past years that exceeded the capacity of the MOH to properly work with each community for initial elections of CLAS members,
- resistance in regional health offices to reduce their role in control of regional finances for PHC, and
- continuous turnover of regional administrative and clinical personnel with limited orientation to the program.

Nevertheless, studies and evaluations have shown that CLAS provide services of better quality, better equity, and greater access to medicines, with greater beneficiary coverage and cost-efficiency.^{1 2 3 4} A case study of CLAS was prepared by this author for the World Health Organization detailing the history and development of CLAS from 1994 to the present.⁵

II. Study Question

In order to further determine the added value of the CLAS management model with community involvement to the development of government-sponsored primary health care in Peru, it was considered important to assess the possible impact of CLAS on the actual health status of the population. At the same time, we wanted to look at variables of selected health behaviors and health services utilization in order to help explain any possible findings on differences in health impact of CLAS and non-CLAS PHC services.

III. Materials and Methods

A. Data Set Utilized

This was a secondary analysis of national survey data from the Peru National Demographic and Family Health Survey (ENDES). The ENDES is the Peru version of the DHS (Demographic and Health Surveys) that is implemented in over 80 countries world-wide sponsored by USAID, World Bank, and other donor agencies since the mid- 1980's. A standard questionnaire has been developed that collects standardized information on a series

¹ Vicuña M, Ampuero S y Murillo JP (1999) "Análisis de la demanda efectiva y su relación con el modelo de gestión de los establecimientos de salud del primer nivel de atención," Serie de publicaciones PAAG-SBPT-AC, Vol.2. Lima: Ministerio de Salud.

² Cortez R (1998) "Equidad y calidad de los servicios de salud: el caso de los CLAS." Lima: Universidad del Pacífico.

³ Altobelli L (1998a) "Comparative analysis of primary health care facilities with participation of civil society in Venezuela and Peru." Presented at Seminar: Social Programs, Poverty and Citizen Participation, Co-sponsored by Denmark, Finland, Norway and Sweden. Annual Meeting of Governors of the Inter-American Development Bank, State and Civil Society Division. Cartagena, Colombia. March 12-13, 1998.

⁴ Altobelli L (1998b) "Health reform, community participation, and social inclusion: the Shared Administration Program." Lima: UNICEF Peru.

⁵ Altobelli L (2008) "Case Study of CLAS in Peru: Citizen participation in governance of primary health care", PPHC Knowledge Network of the World Health Organization Commission on Social Determinants of Health, Alliance for Health Policy and Systems Research. (Part of Case Studies of Programmes Addressing Social Determinants of Health and Equity).

of variables on maternal and child health and nutrition status, health services utilization, characteristics of households and physical living environments of families, and many other sub-topics. Each country adds or deletes questions as determined locally, though questions, questionnaire format, sampling, and data collection methodologies remain the same so that inter-country comparisons can be made. ENDES has been implemented in Peru every five years since 1986. The current analysis was conducted on ENDES IV from the year 2000.

B. Identification of Sample Populations

In order to comparatively assess populations served by CLAS and non-CLAS PHC facilities in the Peru ENDES IV database, it was necessary to create a new variable “CLAS” in the data set. In order to do so, we matched data on the identification code (UBIGEO) that includes Department-Province-District in the ENDES IV database with the same UBIGEO code (Department-Province-District) assigned to each CLAS-administered PHC facility. The UBIGEO of population centers that entered into the cluster sampling of the ENDES IV sampling frame that matched with the UBIGEO of CLAS-administered facilities were coded as “CLAS”. All others were coded as Non-CLAS.

A test was run on the data to determine the validity of the above data-coding process, using the new variable “CLAS” to designate populations living in areas served by either CLAS or non-CLAS in a bivariate table with the variable “Place of residence” which indicates if the sample cluster is urban or rural. Results are shown in the following Table 1:

Table 1: Distribution of sample households by districts in which a CLAS PHC facility is located, by place of residence

Place of residence	CLAS	Non-CLAS	Total
Urban	10,030	5,435	15,465
Rural	6,368	7,067	13,435

Based on this analysis, we were able to determine that a sample household was significantly more likely to be assigned to the CLAS category of the CLAS/non-CLAS variable if it was in an urban district even though it really may not pertain to the jurisdiction of a CLAS PHC facility. This leads to the conclusion that households were not reliably assigned to either CLAS or non-CLAS groups in the CLAS variable in the URBAN sample. Rather, we concluded that only RURAL sample households should be used for the current analysis. The reasoning for this conclusion is as follows: (1) urban districts are much larger than rural districts; (2) urban districts usually have more than one PHC facility, and if any one of those were a CLAS, any sample households in that district would be, correctly or not, assigned to the CLAS category; (3) rural districts generally have only one health facility, so that the probability of a true CLAS area household being assigned to the CLAS category is very high. Nevertheless, it remains that a limitation of this study is that there may have been some degree of mis-assignment in the CLAS/non-CLAS variable.

B. Definition of Variables

The variables included the analysis to compare CLAS and non-CLAS in terms of prevalence of child morbidity included the following:

<u>Child nutritional status and child morbidity</u>	
1.	Percent of children under age 5 with chronic malnutrition Definition: Height-for-age less than -2 standard deviations
2.	Percent of children under age 5 with global malnutrition Definition: Weight-for-age less than -2 standard deviations
3.	Prevalence of diarrhea in children under age 5 Definition: Three or more stools per day reported in the previous two weeks.
4.	Prevalence of respiratory illness in children under age 5 Definition: Cough and difficulty breathing reported in the previous two weeks.
<u>Breastfeeding and Immunizations</u>	
5.	Percentage of children 0-5 months of age with exclusive breastfeeding Definition: Consumption of only breast milk, with no water or other milks or liquids
6.	Percentage of children 12-23 months of age with full coverage of immunizations Definition: Complete immunization with BCG, DPT-3, polio-3, and measles vaccines.
<u>Home health care and health service utilization</u>	
7.	Percentage of children with diarrhea who were treated with ORT Definition: Three or more stools in the previous two weeks, given oral rehydration salts prepared from package.
8.	Percentage of children with diarrhea who were taken to a formal health care provider Definition: Three or more stools in the previous two weeks, taken for care at a hospital, health center, or health post.
9.	Percentage of children with respiratory illness who were taken to a formal health care provider Definition: Cough and difficulty breathing in the previous two weeks, taken for care at a hospital, health center, or health post.
<u>Health Insurance Coverage</u>	
10.	Percentage of children under age five affiliated to the Integrated Health Insurance Program (SIS)
11.	Percentage of mothers of children under age five affiliated to the Integrated Health Insurance Program (SIS) during their last pregnancy
<u>Maternal health care</u>	
12.	Percentage of mothers of children under age five with prenatal visit in the first three months of their last pregnancy
13.	Percentage of mothers of children under age five with at least one prenatal visit in their last pregnancy
14.	Percentage of mothers of children under age five with at least six prenatal visits in their last pregnancy
15.	Percentage of mothers with a birth in the last five years who were attended by a professional health provider.
16.	Percentage of mothers with a birth in the last five years who delivered in a health care facility.
<u>Home hygiene</u>	
17.	Percentage of households of children under age five with water-flush toilets.

C. Statistical Analysis

Data were analyzed with SPSS software using pre-programmed data analysis programs to calculate each of the standard DHS variables that were included in this study.

IV. Findings

A. Characteristics of Study Populations

The distribution of age of children and women's/maternal education is shown in Table 2, comparing CLAS and non-CLAS study populations. Age distribution of children under age five is nearly identical in the two study groups.

Distribution of educational attainment in women of fertile age (15-49 years) shows a lower level of education attainment of women living in CLAS areas as compared to those living in

non-CLAS areas. Similarly, educational attainment of mothers of children under age five is lower in CLAS areas than in non-CLAS areas. In both cases, the difference is statistically significant.

Table 2: Proportional distributions by age and education of sample populations

CHARACTERISTIC	SAMPLE POPULATION				P value*
	CLAS		Non-CLAS		
	%	n	%	n	
Total number of sample households	100	6,368	100	7,067	
Age distribution of children under five:					0.99
0-5 months	8.9%	218	8.8%	276	
6-11 months	9.4%	232	9.1%	285	
1 year old	19.3%	474	18.9%	589	
2 years old	19.8%	487	19.9%	620	
3 years old	20.8%	513	20.8%	648	
4 years old	<u>21.8%</u>	<u>537</u>	<u>22.5%</u>	<u>701</u>	
TOTAL	100%	2461	100%	3119	
Educational distribution of women 15-49:					0.006
No education or pre-school only	13.8%	535	12.6%	569	
Any primary schooling	56.0%	2167	53.7%	2425	
Any secondary schooling	25.3%	980	28.0%	1263	
Any superior-level studies	<u>4.9%</u>	<u>191</u>	<u>5.7%</u>	<u>259</u>	
TOTAL	100%	3873	100%	4516	
Educational distribution of mothers of children under age five:					0.000
No education or pre-school only	15.6%	383	15.3%	478	
Any primary schooling	64.5%	1589	59.8%	1864	
Any secondary schooling	16.9%	416	19.9%	620	
Any superior-level studies	<u>3.0%</u>	<u>74</u>	<u>5.0%</u>	<u>157</u>	
TOTAL	100%	2462	100%	3119	

* Chi-square with (n-1) degrees of freedom

B. Bivariate and Stratified Bivariate Analyses

Each study variable was assessed in a 2x2 table with the variable on CLAS/Non-CLAS, with a Chi-square test (2-sided) for significance. Selected variables were also assessed stratifying by three levels of maternal education in order to investigate differences within strata of socio-economic status (SES), utilizing maternal education as a proxy indicator for SES, due to the fact that CLAS populations were significantly worse off in their SES status than the non-CLAS populations. In this way we could examine the within-SES strata differences in nutritional status between CLAS and non-CLAS populations. The results on chronic child malnutrition stratified by maternal education clearly show that the level of maternal education is highly correlated with the level of chronic malnutrition in both study groups (see Table 3).

Comparing CLAS and non-CLAS children stratified by SES (level of maternal education), results showed a significantly lower level of chronic malnutrition in children who live in areas served by CLAS among those whose mothers had any primary schooling. CLAS had no effect on the nutritional status of children of illiterate mothers nor of those whose mothers had secondary school or more. See Table 3.

Table 3: Chronic Child Malnutrition Stratified by Maternal Education

Percent of children under age 5 with chronic malnutrition (low height-for-age) by maternal education and CLAS status					
Maternal education level	CLAS		Non-CLAS		P value*
	%	N	%	N	
No education or pre-school only	54.6	306	54.4	397	ns
Any primary schooling	40.8	1315	44.0	1584	<.01
Any secondary schooling or more	24.6	427	25.2	682	ns
AVERAGE PREVALENCE	39.5	2048	40.7	2663	

* Chi-square (2-sided)

When the differences between CLAS and non-CLAS on the variable for global child malnutrition were stratified by maternal education, we find an insignificant effect of CLAS as compared to non-CLAS within each level of maternal education. See Table 4.

Table 4: Global Child Malnutrition Stratified by Maternal Education

Percent of children under age 5 with global malnutrition (low weight-for-height) by maternal education and CLAS status					
Maternal education level	CLAS		Non-CLAS		P value*
	%	N	%	N	
No education or pre-school only	17.0	305	18.1	397	ns
Any primary schooling	12.1	1315	13.6	1585	ns
Any secondary schooling or more	6.3	427	4.5	682	ns
AVERAGE PREVALENCE	11.6	2047	11.9	2664	ns

* Chi-square (2-sided)

On two measures of child morbidity there was no difference found between CLAS and non-CLAS populations in either measure: the prevalence of diarrhea or prevalence of respiratory illness in children under age five. See Table 5.

Table 5: Child Morbidity

VARIABLE		CLAS	Non-CLAS	P value*
Prevalence of diarrhea in children under age 5	%	17.4	17.9	.67
	N=	2321	2954	
Prevalence of respiratory illness in children under age 5	%	21.0	20.3	.52
	N=	2324	2957	

* Chi-square

There was a significantly lower prevalence of exclusive breastfeeding in the CLAS study population, although in general terms the level of exclusive breastfeeding is comparatively high in both CLAS and non-CLAS groups. There was no difference between populations in CLAS and non-CLAS areas in the coverage of child immunizations. See Table 6.

Table 6: Breastfeeding and Immunizations

VARIABLE		CLAS	Non-CLAS	P value*
Percentage of children 0-5 months of age with exclusive breastfeeding	%	73.1	80.4	<.05
	N=	206	265	
Percentage of children 12-23 months of age with full coverage of immunizations	%	60.2	59.2	ns
	N=	460	586	

* Chi-square (2-sided)

There was a marginally significant difference (at $p < .10$) between CLAS and non-CLAS areas in two measures of health care for sick children: in the percentage of children with diarrhea who were treated with ORT as well as the percentage of children with diarrhea who were taken to a formal health care provider. There was also somewhat of a difference in the utilization of formal health providers for children in the two comparison groups who had respiratory illness. See Table 7.

Table 7: Home health care and health service utilization

VARIABLE		CLAS	Non-CLAS	P value*
Percentage of children with diarrhea who were treated with ORT	%	68.1	64.5	<.10
	N=	415	517	
Percentage of children with diarrhea who were taken to a formal health care provider	%	41.7	36.2	<.10
	N=	415	514	
Percentage of children with respiratory illness who were taken to a formal health care provider	%	55.7	51.1	.126
	N=	488	601	

* Chi-square (2-sided)

There was no difference between populations in CLAS and non-CLAS areas by the percentage of children or the percentage of pregnant women who were affiliated to the Integrated Health Insurance Program (SIS). See Table 8.

Table 8: Health Insurance Coverage

VARIABLE		CLAS	Non-CLAS	P value*
Percentage of children under age five affiliated to the Integrated Health Insurance Program (SIS)	%	1.9	1.9	ns
	N=	1764	2204	
Percentage of mothers of children under age five affiliated to the Integrated Health Insurance Program (SIS) during their last pregnancy	%	2.8	2.6	ns
	N=	1766	2205	

* Chi-square (2-sided)

Prenatal care was found to be earlier and more likely to occur in non-CLAS areas as compared to CLAS areas. However, there was no difference in the percentage of mothers who had at least five prenatal visits. See Table 9.

Table 9: Prenatal Care

VARIABLE		CLAS	Non-CLAS	P value*
Percentage of mothers of children under age five with prenatal care in the first three months of their last pregnancy	%	40.1	44.7	<.05
	N=	1772	2212	
Percentage of mothers of children under age five with at least one prenatal visit in their last pregnancy	%	71.4	74.3	<.05
	N=	1756	2204	
Percentage of mothers of children under age five with at least five prenatal visits in their last pregnancy	%	38.5	40.9	.12
	N=	1756	2203	

* Chi-square (2-sided)

In terms of professional and institutional birth attendance, there was no significant difference in the two study groups. See Table 10.

Table 10: Institutional Births

VARIABLE		CLAS	Non-CLAS	P value*
Percentage of mothers with a birth in the last five years who were attended by a professional health provider	%	29.2	28.8	.76
	N=	1772	2212	
Percentage of mothers with a birth in the last five years who delivered in a health care facility	%	24.9	22.9	.14
	N=	1768	2211	

* Chi-square (2-sided)

There was a slight difference between populations in CLAS and non-CLAS areas by the percentage of households of children under age five with water-flush toilets, reflecting the difference in socioeconomic status between the two comparison groups. See Table 11.

Table 11: Home Hygiene

VARIABLE		CLAS	Non-CLAS	P value*
Percentage of households of children under age five with water-flush toilets.	%	5.5	9.0	<.10
	N=	2301	2821	

* Chi-square (2-sided)

V. Discussion

DHS data on Peru from the year 2000 show that CLAS populations in rural areas were poorer on average than non-CLAS populations. Using maternal education as a proxy indicator, the difference in socioeconomic status (SES) between the CLAS and non-CLAS study groups is a determining factor in the interpretation of the data comparing health and nutrition status of children who live in CLAS and Non-CLAS areas. In order to remove the effect of SES differences, selected variables were analyzed by stratified categories of the SES proxy indicator, maternal education.

Comparing the CLAS and non-CLAS study groups stratified by level of maternal education in Table 3, chronic malnutrition was significantly lower in the group of children whose mothers had any primary schooling. Those with any primary-level schooling is the largest of the three educational strata, and is also the group most likely to use MOH services. Mothers with pre-school education or no schooling are part of the most excluded population that is least likely to use health services at all. The better-educated population with secondary or more education is more likely to use other non-MOH sources of health care (EsSalud for formally-employed workers, Armed Forces health services, or the private sector).

On health services utilization variables, there were several variables that showed greater access for populations living close to CLAS as opposed to non-CLAS health facilities. Three of these showed that CLAS has a positive influence on intermediate variables of access and utilization particularly for children.

Therefore, this study provides evidence that populations in CLAS areas, though less well-off, are more likely to use health services for sick children, and that these same children are less likely to be chronically malnourished. This could be explained, based on findings from

previous studies, by the higher quality of services in CLAS and lower fees-for-services charged by CLAS.^{6 7 8 9}

On the variable of prenatal care utilization, however, the significant difference was in the opposite direction, in favor of a greater likelihood of receiving prenatal care in the first trimester of pregnancy or at least one prenatal visit among non-CLAS populations.

These results show an overall positive effect of the CLAS management model for primary health care on child nutritional status and on health care use especially in children. The legal norms, regulations, and statutes that guided the functioning of CLAS during the time period covered by this study, did not specify objectives for CLAS to develop community-based health systems with a focus on health prevention and promotion. The Local Health Program that served as a basis for the Shared Administration Contract that was signed between each CLAS and their respective Regional Health Directorate, was mostly lost opportunity of the Ministry of Health to promote health prevention and promotion. It was only in the year 2002 that the Ministry of Health established the first General Directorate of Health Promotion (DGPS), which is still trying to get organized, set objectives and strategies, and get operational activities going in the field. The DGPS was, and continues to be, also severely restricted in budget, which further hampers their activities.

The major advantage of CLAS over traditional non-CLAS public sector health services was the incorporation of legalized community participation and a major reform of government health care financing. This was achieved with positive results in quality, equity, and cost-efficiency. The current study was an attempt to use national survey data to show results of CLAS on health impact and utilization indicators, with positive findings on nutritional status and health service utilization by children.

Future Generations Peru worked with the Ministry of Health and the Health Commission of the Peruvian National Congress to redesign the entire CLAS program in a larger context of strengthening the entire system of primary health care in order to achieve better health impacts. This advocacy work resulted in passage of a new law on CLAS¹⁰ in 2007, and subsequent approval of regulations to the law in August 2008. The new law and regulations provide an enhanced focus on health promotion and preventive services, broader participation of the community and local government in health and development, better processes for democratic election of CLAS members, and other improvements to the model based on lessons learned since program initiation in 1994. The restructuring and expansion of CLAS on a national level is currently in progress.

⁶ Vicuña M, Ampuero S y Murillo JP (1999) “Análisis de la demanda efectiva y su relación con el modelo de gestión de los establecimientos de salud del primer nivel de atención,” Serie de publicaciones PAAG-SBPT-AC, Vol.2. Lima: Ministerio de Salud.

⁷ Cortez R (1998) “Equidad y calidad de los servicios de salud: el caso de los CLAS.” Lima: Universidad del Pacífico.

⁸ Altobelli L (1998a) “Comparative analysis of primary health care facilities with participation of civil society in Venezuela and Peru.” Presented at Seminar: Social Programs, Poverty and Citizen Participation, Co-sponsored by Denmark, Finland, Norway and Sweden. Annual Meeting of Governors of the Inter-American Development Bank, State and Civil Society Division. Cartagena, Colombia. March 12-13, 1998.

⁹ Altobelli L (1998b) “Health reform, community participation, and social inclusion: the Shared Administration Program.” Lima: UNICEF Peru.

¹⁰ Republic of Peru. Law Decree N° 29124, “Law that Establishes Co-Management and Citizen Participation in Health Facilities at the Primary Level of Care of the Ministry of Health and the Regions”. October 30, 2007.