

Community Health Assessment

A report prepared for ViviendasLeón

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This community health assessment was designed to analyze the current health conditions of the communities where Viviendas Leon (VL) works and to identify their current resources and needs. An individual community was identified as all of the members of a geographic region that are the responsibility of their respective *puesto de salud*, or community health clinic. Each physician at the *puesto de salud* is responsible for the health of all of the individuals in that geographical area; therefore, the focus of the assessment was on the communities where VL has a presence, Goyena and Troilo. Data was collected on these communities in order to better understand how VL could partner with the Nicaraguan Ministry of Health (MINSa) in order to support the delivery of primary care to these communities.

VL is a non-governmental organization that works out of León, Nicaragua, a city within the Department of León in Northwest Nicaragua. Their current work is concentrated in two rural communities, Troilo and Goyena, which are part of *el terretorio de Sutaiba*. MINSa divides Sutiaba into eight regions based on geography. Each region has a



puesto de salud that serves as the primary care clinic for all of the inhabitants of that geographic region. Each *puesto de salud* is staffed by one physician and two nurses that attend to patients in the clinic four days a week in the morning hours. One day a week is dedicated to *el día del terreno*, where the health workers go out into the community to do house visits and health education, especially with patients with chronic diseases. *El día del terreno* is also utilized as the day for vaccination brigades and mosquito eradication for the prevention of dengue and *chikungunya* in each region.

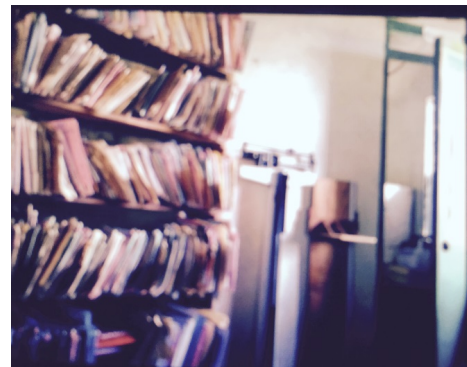


Within each region, there are different *sectores*, which are groups of houses and families that are classified as “sub-communities” within the region. For example, Las pampas, Granera, Goyena sur, Aristia Sanchez and Medico internacional are all of the *sectores* within the Goyena region that receive their primary medical care from *El puesto de salud de Goyena*. These individual *secotores* are spread out from one another over a vast area of land. Many families in the community live in close proximity to their biologic relatives and have built houses on their family’s land.

Community health in Nicaragua consists of primary medical care at the level of the *puesto de salud*. The doctor and two nurses are responsible for all of the medical attention of the community from curative to preventative care. One of the responsibilities of the healthcare providers is to partner with the community members and work with them to improve the health of the community as a whole. The healthcare workers partner with *brigadistas*, or community health workers within the community to coordinate public health initiatives. For example, Dr. Delgado, who works in the *puesto de salud de Goyena*, coordinated a meeting with the *brigadistas* in order to educate them about the prevention of leptospirosis. In this meeting, she explained the importance of maintaining a clean house and yard because every individual house in the community can negatively or positively affect the health of the community as a whole.

Many aid organizations have worked and implemented projects in Goyena and Troilo for many years. Some of the organizations include New Haven, La isla foundation, Centro de Investigacion en Salud, Trabajo y Ambiente (CISTA), and Viviendas Leon. Indiana and Dr. Ramirez have both mentioned that the community in some ways has been negatively impacted by some of the programs that have handed out “things” for free in the community. It has created a mentality of expecting a handout without participating or sacrificing any work hours. Viviendas Leon works to change that mentality in order to stimulate an environment of self-empowerment in the community.

Some of the needs of the *puestos de salud* include the lack of resources including medications and equipment. The Goyena *puesto de salud* does not have electricity, but is in the process of installing a solar panel to power a refrigerator and lights. There is a lack of medications supplied in the pharmacy, which results in the inability of the doctors to provide medications that their patients need. This ultimately can result in the patient not receiving the proper treatment or



supplementation at all because the patients do not have the monetary resources to purchase the medication. For example, the doctors are not able to provide iron and calcium supplements to their chronic kidney disease patients even though this is the standard of care. Additional needs include transportation for the healthcare workers. It is impossible for the healthcare workers to do their *día del terreno* in the *sectores* that are far away from the *puesto de salud*. Transportation is also a limitation for

the community members as well. The majority of the community relies on public bus transportation that operates three times during the day. There is no transportation during the night hours and limited transportation on weekends. This implies that receiving emergency medical care is extremely limited by transportation and it has its greatest consequences for pregnant women. Additional resources that are needed by the Troilo *puesto de salud* include a tank of gas to heat up oral hydration packets along with colposcopy equipment. Troilo and Goyena are distinct from many of the urban regions in Sutiaba because they do not have access to the public potable water system. The community relies on wells throughout the community as their source of water.

Health Statistics

The health statistics were gathered from a number of sources including the following: a report by the director of the *Centro de salud de Sutiaba*, Dr. Humberto José Ramírez Mairena, entitled *Trabajo de final de curso*; Viviendas Leon’s Environmental Health Survey 2015 conducted by the VL staff; and from Dr. Yadira Carrera Trejos in the *puesto de salud de Troilo*.

2014 Population Statistics		
Total population	44,815	
Number of Physicians	15	
Doctor to	2988	
	Goyena Sector #8	Troilo Sector #7
Total	1793	2241
Male	855	1068
Female	938	1178
Urban residents	0	0
Rural residents	1793	2241

Table 1 The population data for Sutiaba and for the Goyena and Troilo regions.

Water source for the residents of Sutiaba (%)		
Potable Water	Well	River
84.70%	14.20%	0.60%

Table 2 Water sources for the *territorio de Sutiaba* collected from Dr. Ramirez's report.

VL Community Survey in Goyena 2011	
Personal Well	307 (86.2%)
Community Well	22 (6.2%)
Neighbor's Well	4 (1.2%)
Don't know	19 (5.4%)

Table 3 Results from the ViviendasLeon survey done in Goyena in 2011 on community water sources.

Patients with Chronic Diseases 2014							
<i>Puesto de salud</i>	DIABETES	HTA	ASMA	EPILEPS	CARDIOPATIA	REUMATIC	OTROS
Troilo 7	20	66	7	7	3	31	42
Goyena 8	22	60	12	4	0	26	43
Total for Sutiaba	795	1007	225	385	55	434	287

Table 4 The total number of patients in Troilo and Goyena that suffer from chronic illnesses along with the total number of patients in Sutiaba with the respective chronic illness.

Number of cases of the principle diseases in Sutiaba					
Disease	2009	2010	2011	2012	2013
Confirmed Dengue	16	69	14	22	89
Suspected Dengue	250	375	156	131	452
Malaria	0	0	2	4	3
Leptospirosis	0	9	2	0	2
Acute Respiratory Infections	15575	11166	9901	6074	6825
Acute Diarrhea	1284	752	842	713	745
Pneumonia	1580	1284	1080	869	1004
Hepatitis	0	0	0	52	1
Tuberculosis	16	28	17	21	20
HIV	10	4	13	7	11

Table 5 The number of cases from the principle diseases in Sutiaba between 2009-2013.

Causes of death 2009-2013					
Centro de salud sutiava	2009	2010	2011	2012	2013
Chronic Kidney Disease	30	43	57	19	48
Myocardial Infarct	16	27	33	25	31
Cerebrovascular Accident	13	10	19	19	15
C. A. otros	7	10	6	14	9
Diabetes	6	14	10	7	10
Hypertension	4	19	6	15	7
Drowning (por sumerci)	4	0	0	4	0
Congestive Heart Failure	3	0	0	0	0
Hepatic Cirrhosis	3	11	10	6	10
Chronic Alcoholism	3	12	9	7	5
Pneumonia	0	6	4	0	10
Pancreatic Cancer	0	2	0	0	0
COPD	0	0	12	0	8
Maternal Death	0	0	0	2	0
Total	89	154	166	118	153
Other causes	13	13	46	54	45
Total	102	167	212	172	198

Table 6 The principle causes of death in Sutiaba 2009-2013.

June 2015 Survey Summary		
Average Age	19	
Females	22 (71%)	
Males	9 (29%)	
Does Water Negatively Affect your Health?	Yes	No
	18 (58%)	13 (42%)
Yes, what are the health issues related to water supply?	Stomach aches	2
	Kidney problems	6
	Back pain	1
	Respiratory problems	1
	Agrochemicals	3
	Bad quality (lack nutrients)	1
	Bad taste	1
	Salts and minerals (bad)	1
	Latrine	2
	Inappropriate use of water	1
	Don't know	1
	Dry wells	1
	Waste and animal contamination	1
*categorical answers with the possibility of multiple answers from one person		
Highest priority for aid?	Don't know	2
	Work	1
	Lack of Com. Dev. Knowledge	1
	Water potable	2
	Water quality	9

	Environmental issues	1
	Trash burning	2
	Cleaning the wells	1
	Building materials for houses	4
	Transportation for health needs	1
	Waste management	1
	House	1
	Baseball field	1
	Health and food security	1
	None	2
	Available education for children	1
	Contaminants (general)	1
		32

Table 7 The results from the June 2015 VL Environmental Health Survey in Goyena.

Number of cases per 100 residents in Sutiaba					
	2009	2010	2011	2012	2013
Acute Respiratory Infections	34.8	24.9	22.1	13.6	15.2
Acute Diarrhea	2.9	1.7	1.9	1.6	1.7
Pneumonia	3.5	2.9	2.4	1.9	2.2

Table 8 The number of cases for the respective illnesses per 100 residents in Sutiaba.

Pneumonia Cases in Troilo		
	Number of Cases	Number of cases per 100 residents
2013	167	7.45
2014	116	5.17
2015	72	

Table 9 The number of cases of pneumonia in Troilo during 2013-2015. The number of cases in 2015 includes all of the cases through week 27. The census data from 2014 was used for the total number of residents in Troilo (2241) and it was used to calculate the number of cases per 100 residents.

Acute Diarrhea Cases in Troilo		
	Number of cases	Number of cases per 100 residents
2013	102	4.6
2014	143	6.4
2015	48	

Table 10 The number of cases of acute diarrhea in Troilo during 2013-2015. The number of cases in 2015 includes all of the cases through week 27. The census data from 2014 was used for the total number of residents in Troilo (2241) and it was used to calculate the number of cases per 100 residents.

Discussion

The communities of Goyena and Troilo represent two distinct populations of people within Sutiaba. VL has the advantage of working closely with the community members on various projects over the past 10 years. These strong relationships can be leveraged in order to partner with MINSA and the health workers at the *puestos de salud*. By supporting the *puestos de salud*, VL could support the preventative health initiatives that are already in place within the communities by providing resources to the health workers.

Many of the concerns of the community include the quality of water in the community and the possibility for the water to be contaminated by agrochemicals from the local sugar cane fields. This concern plays a dynamic role in the community and is important for the perceptions and beliefs of the community. The concern for the quality of the water could be rooted in the idea that the community is focused on getting potable water throughout the community; therefore, they believe that if they continue to mention the contamination of the water, an organization will start a project for potable water. However, the community does not correlate this problem with specific diseases that could be related to contaminated water. For example, the community members mention many other diseases that they believe are caused by contaminated water such as respiratory illness and back pain. Also, the

health workers at the *puestos de salud* told me numerous times that the community members do not come and get the free chlorine tablets that are provided by MINSA. Although the community members have been educated on the importance of chlorinating their water numerous times by the healthcare workers and other NGO projects, they remain non-compliant. Community members even told us on our house visits the proper chlorination techniques that are needed for their drinking water. This indicates that they have the information, but they are not putting it into practice.

The non-compliance that is seen with the chlorination of the water in the communities represents an interesting aspect of the community. It reminds one that innovative methods need to be used to motivate the community to empower themselves to take action for their health. Any public health initiative that is carried out over the long-term in Goyena and Troilo should be a culturally sensitive, appropriate project that fits the needs of the community. One interesting technique that could be implemented is a project centered on motivational interviewing with community members. This is a technique used by many physicians to help change behavioral patterns in their patients without directly telling their patients to change their habits. It is based on the idea that one needs to take responsibility for their actions and have the desire to change before real changes in habit can be made. This method could be implemented in the community in order to facilitate change. For example, the importance of maintaining a clean house and yard for the prevention of Dengue fever and *chikungunya* could be discussed with the community leaders and *brigadistas* in a way that empowered them to take ownership of their individual health and the health of the community instead of using an authoritative tone to tell them to change their habits.

Recommendations

Dr. Ramirez had two different ideas for the community to improve their living conditions and clean up the community. He reinforced the importance of having a sustainable project within the community because there are many organizations that have started projects and not been able to maintain them over the long-term. One of his ideas includes a competition within the different *sectores* to see who can have the cleanest yards and houses. He said that MINSA has done this in the past and provided a prize for the *sector* that was the cleanest. It would be a way to motivate the community and get involvement from all of the residents. The *brigadistas* in the community could work in partnership with VL and MINSA in order to coordinate the event within the community. The other project idea that

he has is to implement a trash and/or recycling program. There is not a system of trash collection in the community, so it would be very beneficial to have an innovative project that created a space in the community to collect or bury the trash. A recycling program could potentially provide a source of income for the residents as well.

Some of the additional recommendations that could be carried out in the future include the following. In order to support the *puestos de salud* with their *dia del terreno*, VL could coordinate a vehicle for the doctor and nurses to go and visit some of the *sectores* that are farther away from the *puesto de salud*. This would improve the care for the residents who have difficulty getting to the clinic along with increasing the number of medical consults for patients with chronic diseases. It would increase the continuity of care for the pregnant women who need to maintain close communication with the healthcare workers throughout their pregnancy. A strong presence of the healthcare workers in the more remote *sectores* could improve the relationships of the patients and the healthcare system in general ultimately improving compliance to care. A record of the specific activities that the healthcare workers accomplish during the *dia del terreno* could be maintained in order to record the exact benefits that the communities are receiving. This would allow VL to solicit donations for additional funding for the *puestos de salud* and other community health initiatives.



In order to improve the access to medications for the patients in Troilo and Goyena, an account could be opened in a local pharmacy. For example, when one of the *puestos de salud* does not have a medication for the patient, the doctor could write the name of the medication on a piece of paper and have a stamp from VL that would verify that the patient was seen in the *puesto de salud* and needs to get that medication in the pharmacy. Once the patient is directed to the specified pharmacy, he/she could receive the medication free of charge. There are a number of pharmacies located near the market that would be convenient for the community members to access including *Farmacia Castellon*. Dr. Ramirez also recommended another pharmacy that is right next to *El centro de salud de Sutiaba* called *Farmacia Autogestionaria Sutiaba*.

VL could have a strong influence on health education in the communities. One of the most important educational topics is the importance of water. The communities are concerned that their

wells and sources of water are contaminated with pesticides. It will be important to communicate that their wells are not contaminated by agrochemicals in order to clarify any misconceptions. If there is fecal contamination in the wells, proper cleaning of the water with chlorine tablets should be reinforced. Each *puesto de salud* has a supply of chlorine tablets that are free as long as the community members come and pick them up, which seems to be a problem. By including an educational activity within the Human Capacity Trainings (HCT), VL could educate a large number of people with an interactive activity. Also, it would be very beneficial to help develop the *brigadistas* in each of the communities as leaders. Increasing *brigadista* involvement in the community could have a positive effect on the overall health of the community.

Acknowledgments

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