

THE HEALTH CHALLENGES IN GUATEMALA

Health outcomes have improved in Guatemala over the last decade with life expectancy increasing by almost 10 years and infant and maternal mortality rates falling significantly. However, although the overall picture is positive there continue to be marked differences between the indigenous and non-indigenous population of Guatemala. For example, the maternal mortality rate (153/100,000 live births) was three times higher for indigenous women (211/100,000 live births) than the *non-indigenous* population (70/100,000).¹ The highest maternal mortality rates are in the departments of Alta Verapaz (266.15 per 100,000 live births), Sololá (264.53), and Huehuetenango (245.83), all of which have a large rural, poor, indigenous population with limited access to health care.² Similarly, while approximately 44% of children under five suffer from chronic malnutrition, amongst indigenous children the rate is 58.6% compared to 30.6% amongst non-indigenous children. In 2003, a World Bank assessment of health outcomes in Guatemala concluded that for a lower middle-income country such as Guatemala, the lack of investment in social development contributed to indicators being in much the same neighbourhood as countries like Bolivia, Nicaragua, and Honduras.³ The situation has not changed markedly since then.

As part of the 1996 Peace Accords, the Ministry of Public Health and Social Welfare (MSPAS) introduced the Program for the Extension of Coverage (PEC) to strengthen primary care and extend health services to rural indigenous communities. The program is delivered by nongovernmental organizations which provide basic maternal and child healthcare services by ambulatory medical teams who spend one day a month in individual community health posts. This primary point of contact can lead to referrals to health centres, regional hospitals, or reference hospitals in Guatemala City. In 2009, it was estimated that the PEC provided basic coverage to 4.6 million people in rural Guatemala. The MSPAS has launched two initiatives to strengthen the PEC during the last decade: 1) the Comprehensive Community-based Care for women and children program to reduce chronic malnutrition; and 2) a program to strengthen secondary care to improve access to institutional births. However, despite these changes, there is a widespread sentiment amongst Guatemala's indigenous population that the public health system "doesn't treat them well".⁴ However, ongoing language and cultural barriers as well as the cost of getting to health centres and the perception of inadequate services have reduced the impact of health services in rural indigenous communities.

The Tula Foundation has taken a long-term approach to promoting health equity in Guatemala and has chosen to work in Alta Verapaz where problems of inequity and social exclusion are high. During the last decade, the maternal mortality rate has hovered around 260/100,000; and infant mortality has gone from 26.35/1,000 to 18.49/1,000 in 2009. Working with the MSPAS, its regional department of health of Alta Verapaz (DASAV in Spanish) and the National School of Nursing - Cobán (ENEC in Spanish) developed innovative solutions to the health challenges facing the indigenous population of the department. Alta Verapaz has a population of approximately 1.0 million inhabitants, 93% of whom are indigenous (Q'eqchi and Poqomchi).

To improve primary health care in rural indigenous communities, the Ministry developed a strategy to develop community auxiliary nurses who are more culturally appropriate for indigenous communities.

¹ SEGEPLAN 2006: "Hacia el Cumplimiento de los Objetivos del Milenio en Guatemala.

² Panamerican Health Organization. 2008. **Health in the Americas. Volume 2.** (Washington: PAHO). Page 380.

³ World Bank. 2003. **Guatemala: Poverty in Guatemala.** (Washington: IBRD). Page ii.

⁴ Nicole Berry. 2008 *Who's Judging the Quality of Care? Indigenous Maya and the Problem of "Not Being Attended.* In **Medical Anthropology** 27(2):164–189.

Using an innovative distance education nursing program, the Tula Foundation supported the ENEC begin to train community students from rural communities in rural health centres who were able to bridge traditional medicine and beliefs to the public health system. As of May 2010, there have been 500 graduates 95% of whom are working in the PEC or the public health system. The success of this program spawned a distance education program for certifying auxiliary nurses to become technical nurses (currently 200 students are enrolled in this 3-year program).

To improve rural health services, the Tula Foundation and the Ministry piloted a cell phone based telehealth project in 2007 using front-line PEC community mobile health workers (CmHWs). The project has been designed to strengthen primary health care in the most disadvantaged communities by providing access to health services 24/7. There are currently 60 CmHWs providing coverage in 7 rural municipalities to a population of approximately 175,000. The CmHWs have also been instrumental in epidemiological surveying (providing training for early detection for H1N1 in 2009); community training in health issues (nutrition and HIV/AIDS); and community-based health planning for emergencies. The results of the pilot have been striking: over 17,000 consults; more than 400 patients transferred in a timely fashion to health centres; approximately 150 of these were high risk pregnancies or women with complications during pregnancy. The pilot project has also included strengthening real-time epidemiological monitoring; in-service training for health professionals at health centres; and video consults between physicians and nurses at district and regional hospitals.

In 2010, we also launched a new component of the program: *X'Beil li Kawilal* (The path to health), which consists of training young community health leaders in those communities covered by the telehealth project. The objective is to provide reproductive health training for young adolescent women in rural communities.

Project goal

To reduce infant & maternal mortality in the department of Alta Verapaz by strengthening primary health care, improving access to emergency obstetrical care and strengthening post-natal care in rural indigenous communities.

Project Objectives

1. Strengthen Primary Health Care by increasing the number of CmHWs.
2. Strengthen secondary care by providing in-service training for health professionals and educating new health human resources through distance education programs.
3. Strengthen tertiary care by promoting a more culturally appropriate and 'connected' environment for rural indigenous patients.
4. Promote research in family and community health for evidence-based decision-making.

Expected Results

In five years, the expected results are:

1. 330 CmHWs in rural communities providing round the clock primary health care services to rural indigenous communities in Alta Verapaz.
2. 18 Health Centres with more appropriately trained professionals providing faster and more efficient care for rural patients.

3. A departmental hospital and two district hospitals providing more culturally-appropriate care to Alta Verapaz's indigenous population in a more efficient and effective fashion.
4. Research reports and studies relevant to the realities of health outcomes of Alta Verapaz, Guatemala.

Strategic Actions

1. Expanding telehealth to Alta Verapaz' rural communities
 - a. Strengthening primary health care services by providing continuous care which is culturally appropriate to Alta Verapaz' indigenous rural communities.
 - b. Extending community-based public health training and promotion to CmHWs, midwives and community health volunteers through teleconferences.
 - c. Enhancing epidemiological monitoring in rural communities.
2. Improving the quality of secondary health care services.
 - a. In-service distance training for health professionals.
 - b. "Getting a second opinion" – Using audio and video consults with specialists.
 - c. Educating new health personnel using distance education.
3. Improving the quality of tertiary care.
 - a. Developing a more culturally appropriate model of care in the Alta Verapaz's hospitals. Making more efficient use of the departmental telehealth audio and video consultation infrastructure.
 - b. Strengthening the referral and response system to ensure that rural patients receive the appropriate care once they are discharged from hospital.
4. Basic research designed to improve the health system in Alta Verapaz and Guatemala.

More detailed information on each of these strategic actions is provided on the following pages.

1.0 Extending Community mobile health coverage

1.1 Strengthening Primary Health Care & Emergency Obstetrical Care

What have we done?

There are currently 60 CmHWs in rural indigenous communities equipped with cellular phones and some with video conferencing capabilities who provide basic health services to 316 communities and 175,000 inhabitants (approximately 22% of the rural population). In addition to doing prevention and health promotion in their communities, they have become critical links for emergency care with secondary and tertiary health services. They are supported by physicians and nurses in district hospitals and health centres and are a vital link between the community and these services.

The results to date show that this model of care is accepted by rural communities and by health care providers. In 2009, the CmHWs provided over 17,000 consultations and referred /transferred over 400 patients to health services; 156 were women with problems of pregnancy, childbirth who were referred in a timely manner to health services. Of these, 83 women and 56 children were at risk of dying.

What do we plan to do in the next five years?

In close co-ordination with the MSPAS and the health posts/centres/and regional hospitals, we plan to scale-up the deployment of community mhealth workers to cover all the rural and remote communities of the department. The Ministry of Health has calculated that 330 CmHWs would have a dramatic impact upon health outcomes in rural Alta Verapaz which would, amongst other things, dramatically reduce rates of maternal and infant mortality, in Alta Verapaz.

How will we do it?

The new CmHWs will be selected by from amongst the PEC's front line workers who are stationed in rural areas. The criteria for selection will be developed by the DASAV and will be weighted towards those zones with the highest maternal & infant mortality rates. The newly selected CmHWs will receive intensive training prior to being provided with a cellular telephone and an emergency medicine chest. In those areas where there are health posts, the CmHWs will coordinate with the health post and nearest health centre.

The implementation strategy is to gradually increase the number of CmHWs on an annual basis. This will be done by dividing the department into five sub-regions and adding one additional region per year. Each year we will add an additional 60 CmHWs to cover more rural communities. Each sub-region will have a headquarters and a technical team, which will coordinate with the Health Districts and Providers of PEC. The CmHWs will be managed by the DASAV and the project team.

What are the expected results?

A more effective and efficient primary health care system because of the presence of 330 community mhealth workers who will provide the 'missing link' – medical and cultural – between poor indigenous communities of Alta Verapaz and the formal health system. This will contribute to a significantly reduced infant & maternal mortality rate in Alta Verapaz.

1.2 Training for CmHWs, midwives, and community leaders

What have we done?

Distance training sessions for communities has been done using an audio-conferencing system to connect CmHWs and other community members to health training specialists in Cobán, Alta Verapaz. Many of these sessions have been delivered in Pocomchí or Q'eqchí languages to increase their impact upon community members. The training system permits two-way communication between community participants in their communities and trainers leading the sessions based in Cobán. There have been monthly training sessions with an average of 900 participants per session between CmHWs, midwives, community leaders and youth. Topics covered have ranged from recognition of high-risk pregnancies, childbirth and post-partum care, to respiratory infections, pulmonary tuberculosis, vector borne diseases, family planning, enabling early detection of cervical cancer and breast cancer. In addition, this training system enables community leaders, and groups of teenagers and young women *X'Beil li Kawilal* to promote self care women's health and prevent early pregnancies.

What do we plan to do in the next five years?

As the number of CmHWs increases, so will the geographical scope of the training sessions as they are the focal points through which we can reach increasing numbers of rural inhabitants. We will promote further educational activities with community groups with priority given to issues related to maternal and infant health, family planning, adolescent health, and will continue to focus upon strengthening the young members of groups *X'Beil li Kawilal* who are active in community health promotion. We will also involve the health service providers and health districts in the training sessions to improve local communication and dialogue with communities. The use of information and communication technologies will enable the DASAV and central level the Ministry of Health training programs to establish direct communication with communities. In addition, the platform will enable multidisciplinary teams of the PEC and health posts to have another communication channel in the event of disasters and emergencies for information updates, departmental communication, and training sessions related to the emergencies themselves.

How will we do it?

The training sessions will be delivered through cellular telephones connected to speaker/microphones so that community groups can actively participate in each training session. As the number of CmHWs increases, the organization of these training sessions may be delegated to sub-regional trainers affiliated to the PEC program or the local health district. Overall coordination of the training sessions will be done by the project team in coordination with the DASAV. However the audio conferencing system is sufficiently robust and flexible to allow for training sessions to respond directly to more local needs and priorities.

What are the expected results?

Amongst other things, the community training sessions will promote increased community capacity to adopt measures that increase health promotion and prevention. More specifically, the community training sessions will increase the capacity of communities to develop community and household emergency plans in the event of natural disasters and household emergencies.

1.3 Improve the epidemiological surveillance in rural communities.

What have we done?

With the Ministry of Health we have been working on using the same cellular telephones of the CmHWs to improve the efficiency and the effectiveness of the MSPAS epidemiological monitoring system. With web enabled applications like EpiSurveyor and Frontline SMS, we have developed a basic digital data platform that is compatible with the Ministry of Health information system. TulaSalud has created a database where all information is downloaded, which allows the interpretation and epidemiological analysis of very practical way. It also is undertaking a process of mapping of the project communities. In 2009, because of increasing chronic and acute malnutrition in the country, the CmHWs were trained in brachial arm circumference measurement to detect malnourished infants and children and notify health services of the results of their tests. Several cases were detected in this way. While the CmHWs are not currently monitoring malnutrition in their communities, this could be done in the future.

In 2010, the CmHWs have begun to monitor all pregnancies in their communities with much greater frequency and transmit progress related to health status, risk factors and signs and symptoms of danger that may be present on a much more frequent basis. This information is reported monthly to the medical officer of the project who sends SMS text reminders to the CmHWs to remind them to visit the high risk patients at home, 15 days before their due date and provide guidance about the risks and conditions. Many people are reluctant to leave their communities to seek medical care because of a) costs, and b) a widespread sentiment that they will not be “well cared for” in the hospital. The CmHWs provide a cultural and linguistic bridge to health services for rural families and have been instrumental in convincing some women to leave their communities to seek care when their health was at risk.

What do we plan to do in the next five years?

Increase the use of mobile devices for epidemiological surveillance with continued emphasis on gathering information related to pregnancies which will assist all the health services to respond more adequately to potential high risk cases before they become emergencies. There are many aspects that the DASAV need to monitor more effective and in a timelier manner, such as pregnancies, cases of malnutrition, emerging epidemics, disasters, etc. This will be possible through the use of this system at the department level. Current technologies are compatible with the web based health information that the Ministry of Health is developing, so during the next five years we will work closely with the Ministry of Health to ensure that community-based monitoring can be incorporated rapidly into national level health information systems. It will also be ideal to continue the community mapping exercise to enable more rapid response to community health emergencies if and when they arise.

How will we do it?

It will be essential to train staff of the health NGOs and the Health Districts to manage these programs and to optimize their use. It also will require computer equipment and connectivity in all health districts and health service NGOs. We will also work with the DASAV Food and Nutrition Security Program so that the CmHWs can be trained in the prevention and treatment of cases of malnutrition in rural areas.

What are the expected results?

A more effective and efficient system of epidemiological surveillance of rural communities to improve decision-making for in Alta Verapaz.

2 Improving the quality of health services in secondary care.

2.1 Continuing Education for personnel in health centres and district hospitals

What have we done?

In 2008, we supported the Ministry of Health to conduct workshops for the development of standards of care and nursing competencies at national level. In 2010, at the request of the DASAV and the MSPAS, we provided in-service training to physicians and nurses on maternal mortality and dengue. We also launched an eight month distance education program on maternal and neonatal care for auxiliary nurses in 14 different sites for approximately 100 nurses in health centres of northern Guatemala. The program is intended to improve the quality of care for mothers and newborns in health centres.

What do we plan to do over the next five years?

The MSPAS has identified ongoing training for health personnel in the district hospitals, health centres and health posts as a priority during the next five years. This initiative will reduce costs and time in implementing training programs in accordance with local needs reflecting local problems. This will reduce the need for staff to travel to the departmental capitol for training. This will also reduce the frequency with which health posts and centres are short staffed which should contribute to a better quality of care. To facilitate this, there will be a professional in the field of education and health to coordinate between ENEC, DASAV, MSPAS, TulaSalud and other agencies involved in training programs.

How will we do it?

We will provide computer equipment and connectivity to the nine Health Districts that do not yet have them and train them to use Elluminate Live, so that the training programs can be delivered based upon the schedules established by the DASAV. Once the platform and the training modality has been established during the first year, we will make it available to the MSPAS to use for its training programs in Alta Verapaz which are currently delivered on a face-to-face basis in Cobán with trainers coming from Guatemala City and health personnel traveling to Cobán for these sessions.

What are the expected results?

The development of a more cost-effective and efficient training system for health personnel in Alta Verapaz taking advantage of the opportunities presented by having a high band width internet connection and a robust distance education platform present and working in the health centres and district hospitals of Alta Verapaz.

2.2 “Getting a second opinion” – Using audio and video consults with specialists.

What have we done?

To strengthen community health care, we equipped selected CmHWs with cellular phones in 2008 so that they could consult professional health workers directly rather than referring patients directly to health centres. Based on the success of this initiative, we both expanded the number of CmHWs and began experimenting with video consults using netbooks and mobile modems in 2009. CmHWs now get support from physicians and nurses in local health centres, and physicians in health centres can get second opinions from specialists in the regional hospital in Cobán. The aim is to save lives and contribute toward more efficient system of referrals and response for patients moving through the public health care system.

What do we plan to do in the next five years?

The Ministry of Health and Tulasalud will continue to strengthen the CmHWs and health services, to extend the health network into rural communities in Alta Verapaz on an annual basis. We will do so by using the internet and existing and emerging information and communication technologies to connect health posts, health centres and the 3 hospitals to facilitate the seeking of 'second opinions.' The system is currently in the initial pilot phase and the DASAV-Tulasalud technical team is currently developing protocols and procedures for use between the rural health centres and the hospitals. More complex cases will be dealt with between patients, physicians and specialists in the health centres and the departmental hospital of Cobán.

How will we do it?

The DASAV is moving toward connecting the 18 departmental health centres to the internet to promote more efficient information transfer and coordination of logistics. Should this project move forward, we will have a virtual private network on which a number of applications can be mounted including those that would enable low band-width audio and video-consultations between physicians in these district centres and specialists in the departmental capital. We have already begun the process of sensibilization and training of regional health professionals on the range of possibilities that these consults can provide.

It will continue to strengthen the hospital in Cobán in the video system queries for more efficient support to the services of the second level, but also will promote this service in the national hospitals to turn; physicians can receive Cobán support and advice of other specialists located in the capital.

What are the results?

Volunteer and institutional staff in the first and second level health care advice and have a second opinion from a specialist via video conferencing, enabling them to provide quality care and optimize the system of reference and patient response.

2.3 Educating new health personnel using distance education.***What have we done?***

Since 2004, ENEC and TulaSalud have been offering a community auxiliary training program by distance education to indigenous students from seven departments of Guatemala including Alta Verapaz. As of 2010, have graduated about 500 new community auxiliary nurses over 95% of whom are working for the MSPAS close to their communities. The vast majority of students come from remote rural communities and return to work on them to provide their services, speak the local language and understand the complexity of interaction between traditional and western medicine. The fact of having graduates who are from local communities; who speak their language and understand the cultural context dramatically improves the experience of patients from rural communities and instils a greater sense of trust in the health care system than has previously been the case. ENEC is currently training a new cohort of approximately 450 students enrolled in this course, which will be completed in November 2011. In addition, there is also a 3 year distance professional nursing program with two cohorts who will graduate in 2011 and 2013 respectively.

What do we plan to do in the next five years?

The professional nursing program can be financially sustainable with fees paid by students most of whom are already auxiliary nurses with incomes. We assume the same will be true in the future. However there is an ongoing need to train community auxiliary nurses because the program targets students who are poor and from rural communities. It will be necessary to establish new agreements with the Ministry of Health and ENEC to define the necessary mechanisms to ensure that ENEC can offer this program on a permanent and sustainable in the future. At the same time, given the existing capacity of the distance education platform, it is possible to train personnel in different areas such as clinical laboratory, diagnostic radiographers, graduates in maternal and neonatal, public health, research, depending upon the local needs and the requirements of the Ministry of Health in general.

How will we do it?

Using existing curricula and teaching professionals at ENEC we will continue to offer education programs to students in rural settings using the already established procedures.

What are the expected results?

Health manpower trained near their communities, in their own reality, culturally relevant and willing to work in rural Guatemala air.

3. Improving the quality of services in tertiary care.***3.1. Promoting cultural awareness in Alta Verapaz' hospitals******What have we done?***

Starting in 2010, we have supported the Inter American Development Bank financed MSPAS initiative to implement the first 'indigenous module' in a hospital in Guatemala. This module consists of hiring a biomedical physician to work with the hospital staff and a number of traditional medical health workers to work alongside doctors and nurses in the hospital as well as the establishment of a traditional Mayan birthing setting. In addition, the DASAV and Tulasalud have been cost sharing the staffing within the hospital of a telemedicine unit to field telephone calls from CmHWs, report back to them on the progress of patients once they have arrived in Cobán, and facilitate the process of video consults between specialists at the hospital and physicians in rural health centres and district hospitals. Both of these activities are in a pilot phase with careful monitoring of strengths and weaknesses.

What do we plan to do in the next five years?

The Vice-Ministry of Hospitals have asked us to continue the implementation of this innovative approach to hospital care in Guatemala once the financing from the Inter-American Development bank runs out in 2011. At that point, we will do a review and assessment of the progress made to date in the implementation of this indigenous module in the Hospital Helen Lossi, then on the basis of this assessment, together with the DASAV and the Vice-Ministry of Hospitals, design a program which builds on the strengths of the current pilot initiative and then extend them on a smaller basis to the three district hospitals in Alta Verapaz.

How will we do it?

On the basis of the experience in the Helen Lossi hospital, we will be able to analyze the strengths and weaknesses of the current approach and develop a strategy for extending the model to the district

hospitals in Alta Verapaz, and by extension, to other hospitals in the rest of Guatemala where similar conditions apply. The process of rapprochement and exchange between hospital staff and indigenous therapists should provide the basis for developing guidelines on how to complement the biomedical model that currently applies with approaches that emerge from indigenous traditional medicine, especially relating to treatment and care for pregnant women and newborns. This will involve a process of awareness, training and involvement of hospital staff so they can build bridges of communication between the two approaches. The exercise is led by a physician who is assisted by a group of traditional healers and they are concentrating on rebuilding a section of the hospital as a traditional Mayan birthing centre. The Indigenous Populations Unit of the MSPAS has already been providing advice and support to the ongoing initiative and will continue to do so in the future.

What are the expected results?

The hospitals of Alta Verapaz will be able to implement a more culturally appropriate model of care that increases the confidence of the indigenous population in the treatment that they will receive in these hospitals.

3.2. “Getting a Second Opinion” from specialists in Guatemala City & Elsewhere

What have we done?

In 2009, we piloted a video conferencing network between 4 CmHWs in rural communities and our medical specialists in TulaSalud to see whether in addition to the audio consults, the video consults might enable the physicians to improve their remote diagnostic capacities. On the basis of this positive assessment, in 2010 we expanded the video consult network to allow physicians at selected health centres in Alta Verapaz to consult directly with the TulaSalud medical specialist and inter alia, specialists at the regional hospital. There is now an audio and video consult unit in the Hospital Helen Lossi where both physicians and nurses can access specialists and provide support to colleagues in the three district hospitals of Alta Verapaz. We have also established a video link between specialists at the hospital in Cobán and a surgical specialist team at the Peterborough Regional Health Centre in Peterborough Canada to see if there was interest and willingness on both sides to develop the framework for getting a second opinion from specialists who might have faced similar cases. We also explored the possibility of establishing video consult links between the regional hospital in Cobán and specialist hospitals in Guatemala City.

What do we plan to do in the next five years?

During the next five years, we intend to promote the practice of seeking a second opinion for hospital specialists in Cobán from their colleagues at the Hospital San Juan del Dios in Guatemala City which has indicated their willingness to provide specialized support for patients in Alta Verapaz.

How will we do it?

To facilitate the coordination between the hospital and other services in Guatemala and elsewhere will require a facilitator within the organizational structure of the hospital, to keep this activity on a permanent and regular basis. The facilitator will undertake a needs assessment of the physicians and nursing teams and establish the corresponding channels of communication with other hospitals in Guatemala City and beyond should this be possible.

What are the expected results?

An improved quality of care in the hospital in Cobán for indigenous patients of Alta Verapaz.

3.3. Strengthening the clinical referral system for rural indigenous patients***What have we done?***

The process of generating a clinical referral for a patient and the resulting transfer of information from the primary care physician to the specialist and back again, are key components in the struggle to deliver less costly and more effective clinical care. Currently, the physicians from the health centres and the CmHWs use the DASAV procedures and forms for referring patients to the hospitals. For the CmHWs, a copy of this referral form is delivered to Tulasalud for consolidation and archiving. In addition, the CmHWs phone the health service to where the patient has been referred to report on their situation and then, to learn about their treatment with the information conveyed to the family in the community. An ongoing challenge in the communities is the lack of response from health services when the patients are discharged from the health centres and hospitals. The community mhealth worker visits the patient upon their return to their community, but often does not have enough information to provide adequate monitoring. In the absence of adequate response, the project team has been monitoring patients who are referred from the CmHWs and providing them with responses by telephone.

What do we plan to do in the next five years?

In coordination with the DASAV, we will implement a pilot program for a simplified electronic referral and response system in coordination with the Ministry of Health building upon the work that we have been doing over the last two years using EpiSurveyor in rural areas of Alta Verapaz. There are a number of applications that might prove to be effective and efficient in this context assuming that we can guarantee patient confidentiality in the process.

How will we do it?

We will develop a pilot program in Alta Verapaz to analyze the current system of referrals and responses within the MSPAS and explore ways in which the current system might be digitized and allow for patient responses to be processed and made accessible to health centres, health posts, and the CmHWs using the internet and/or mobile devices.

What are the results?

A prototype of a digital clinical referral system for patients tested in selected communities of Alta Verapaz.

4. Research and studies on health outcomes in Alta Verapaz**4.1 Qualitative and Quantitative research on health in Alta Verapaz*****What have we done?***

To date, TulaSalud, ENEC and DASAV have collaborated on several investigations dedicated to improving the quality of nursing education and understand the needs of nurses in public sector service in Guatemala. In 2007, we conducted studies aimed at developing human resources in health nursing and nursing development of competency profiles

What do we plan to do in the next five years?

We will create a fund for doing basic research in themes related to improving the quality of health care in Alta Verapaz. We will encourage research as a tool for decision making and action in health care in rural communities. Emphasis will be placed on emerging research agendas and topics which reflect local priorities and promote greater understanding of intercultural and gender approaches within the health care system. These studies may be thesis or projects carried out by experts or interested in selected topics.

How will we do it?

We will establish a research committee to oversee the research funds with representation from the ENEC, the DASAV, and the USAC Faculty of Medical sciences. The committee will meet on a semi-annual basis to review progress made by researchers who have had proposals accepted by the committee and to consider new proposals that may have been submitted in the interim. The results of the research will be disseminated within academic and scientific circles in Alta Verapaz as well as in Guatemala as many of the issues will be relevant to a national audience as well.

What are the expected results?

The studies produced over the five years will strengthen on the one hand, the institutional capacity of the ENEC and the USAC Faculty of Medicine based in Alta Verapaz to investigate and publicize the results and on the other hand will help produce inputs for making decisions based on studies conducted in Alta Verapaz. Obviously, the results of research will have implications for all departments of Guatemala face similar conditions in the provision of health services in rural communities with indigenous populations.

4.2 Studies on health, gender, culture, and information and communication technologies.

What have we done?

During the last five years we have completed a number of baseline studies and special studies on various aspects of health care and health conditions in Alta Verapaz in response to needs for further information prior to making decisions regarding future investments within TulaSalud. We have examined issues like student's communities, nursing needs in rural health services, and staffing requirements in Alta Verapaz.

What do plan to do?

To promote a more inclusive health care system in Alta Verapaz we need to issues like the current role of midwives to find better ways to communicate with them to improve their contribution to reducing maternal and neonatal mortality. Other studies may cover issues related to gender and the use of information and communication technologies in health that might be deployed in Alta Verapaz.

How will we do it?

The studies will be conducted by local consultants in Alta Verapaz with recognized expertise of the issue in question.

What are the expected results?

Technical studies that can be used by TulaSalud, the DASAV, and the MSPAS for improved decision making.