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1 Introduction

There has been a well-documented improvement in the health status of the Nicaraguan population over the last few decades, in particular since 1979. In often adverse and rapidly changing socio-political environments (see figure 1), gradual but steady progress has been made in a range of health indicators. However, impact on health inequities has been limited. Risks and health impact differ according to social class, gender, age, occupation, education, migrant status, ethnicity/race, power/influence and geographical place.

Nicaragua's new health policy places emphasis on the need to strengthen, articulate and reorient the national health system and policy in order to ensure a rights-based and people-centred approach to health and to enhance health equity (Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2008). *"The provision of free health services, quality of care, a focus on the poor and prevention"* are prioritised and considered *Tema de Nacion*[1] (Gobierno de Reconciliacion y Unidad Nacional 2008).

So far, relatively little research has been conducted to evaluate the effectiveness of specific public health programmes and policies, with less still, examining the quality, effectiveness and sustainability of *Primary Health Care.*

This paper describes some experiences and explores perspectives, opportunities, challenges and constraints. The findings are based on document review - published and grey literature- and data collected within the framework of ongoing collaborative research. This includes a preliminary review of student-reports which describe the quality of care in health centres and health posts of Manaugua and Leon during 2006-2009. In-depth interviews were conducted with some key informants (policy-makers, researchers, representatives from civil society organizations, practitioners) in the Pacific Region and in the RAAN during 2009.

The paper starts with a brief description of the concept of quality of care, followed by a description of health challenges, and Nicaraguan health policy. The findings will then be presented. Quality of care is examined from a perspective of Primary Health Care. The paper will begin by examining aspects of primary health care provision (health centres and health posts). The paper will then describe quality of care, e.g. the efforts to integrate vertical disease-control programmes within the district health systems (SILAIS) . The case of the RAAN is examined in more detail as it underlines particular challenges for quality of care and health equity in Nicaragua. The following section focuses on human resources as a critical component of the health systems that determine quality of

[1] Indicators for performance based monitoring are the following:
- Indicator 8: to provide free health services in all health establishments;
- Indicator 9: to reduce maternal and infant mortality
- Indicator 10: to develop prevention through popular mobilization
- Indicator 11: to increase coverage and to improve quality of care
- Indicator 12: to develop the health infrastructure.(Gobierno de Reconciliacion y Unidad Nacional 2008)

care. Finally, the paper will examine participation in relation to the initiatives that have been developed by civil society, with particular reference to those developed since 1979.

2 Quality of Care

Quality of health care has been a contested concept for many years. There are difficulties in making measurements, in particular in low-income countries, where information systems are often weak and health impact assessments rarely conducted. Health *equity* impact assessments are even more rare. Under-registration in e.g. Nicaragua of deaths and births is estimated at 50% and 40% respectively; data-gaps are higher in the remote rural areas and isolated regions (Ministerio de Salud 2003;PAHO 2007). Also, disaggregated data on health differences within for instance urban settings are lacking.

There is a wide spectrum of perspectives on PHC and understanding of its key principles and the concept of quality of care. Quality of care is often misunderstood as only relevant to curative care and to provision of health services. However, it has long been widely recognized that the health of a population is influenced by far more than the provision of health care[2]. *"Quality"* as a characteristic of health care also may be understood differently, and different approaches exist to assess quality of care. The level of quality and the criteria applied are modest in many areas. (Roemer and Montoya-Aguilar 1988).

Studies conducted over the past two decades in Nicaragua (Barten et al. 2001;Gavidia et al. 1988;González and Piura 1997;Mayez et al. 2003;Perez Montiel and Barten F 2009;Sanchez 1993;Sanchez 1995;Wong et al. 2003) have applied different notions and conceptual frameworks of quality of care e.g. the philosophical WHO-recommended framework, the organizational Donabedian framework, and the economic framework of the Bamako Initiative.It is beyond the scope of this paper to examine the rationale for these different conceptual frameworks, notions and approaches, but it is clear that these choices may have implications for the findings and recommendations.

It is worth noting that according to the Ministry of Health (2008) *"health care in Nicaragua over the last decades has been provided without a focus on quality of care .. that should be based upon the needs and expectations of the population and users"*(Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2008).

[2] The classic early statement of this argument is Evans, R. G. & Stoddart, G. L. (1990). Producing Health, Consuming Health Care. *Social Science & Medicine, 31,* 1347-1363.

3 Health Context and Challenges

Nicaragua has an estimated population (2005) of 5,142,098 inhabitants; 67% of the population is younger than 30 years; 55% lives in urban settings. According to recent estimates, 45.8% of the population - 2.3 million people- live in conditions of poverty. Extreme poverty is more prevalent among the indigenous population, which makes up approximately 10% of the total population (INIDE 2005) and among women (80% work in the informal sector, with 20% less salary). Lack of access to basic services affects 35-40% of the population (MINSA/OPS 2008) and 20% of children under 5 suffer from chronic malnutrition and 6.3% suffer from severe chronic malnutrition, in particular in the RAAN, Jinotega, Madriz and Matagalpa. Internal as well as external migration has increased over recent years.

Infant and maternal mortality rates are still high, particularly in rural areas and in the autonomous regions of the country (ENDESA 2007). The main causes of maternal mortality are postpartum haemorrhage (46%), puerperal sepsis (11%) and eclampsia (27%)(Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2008). Nicaragua has the highest rate of teenage pregnancies in the region. The average age for women in Nicaragua to have their first sexual intercourse ranges from 17,4 –17,8 years. On average the first child was born to these women 22-28 months after their first sexual intercourse at 19,8 years of age (INEC 2008;Zelaya et al. 1997). In 2005, 30,0 % of the children born in the SILAIS of Leon were born to adolescent mothers.(MINSA 2005). It is worth noting that in comparison to 2008, the trend of maternal mortality among adolescents (1-19 years) has increased including in Managua (MINSA 2009). Also, domestic violence is on the increase and continues to affect mainly children and women.

As for vaccine-preventable diseases, there have been no reported cases during 2007 and 2008 (SISNIVEM 2009). Although determinants of intestinal infectious diseases have hardly been modified, mortality due to diarrhoea decreased significantly in 2008 and this has been attributed to the intensive education campaigns and to community mobilization (Gobierno de Reconciliacion y Unidad Nacional and MINSA 2009).The mortality due to infectious respiratory diseases reportedly increased in 2008, in particular in the SILAIS of Jinotega, Manaua, Masaya, Granada, RAAS and Nueva Segovia. The prevalence of leishmaniasis has increased over 2008; while the prevalence of malaria continues to decrease (Gobierno de Reconciliacion y Unidad Nacional and MINSA 2009).

Household expenditure constitutes the main source of financing in 2004, accounting for 49.4% of the total health expenditure. The ageing population is a vulnerable group; only 10% of the ageing population has access to social security. (Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2008)

4 Health policy

Before 1979 the public health system of the Somoza regime was extremely inequitable and clearly emphasized curative hospital care rather than sorely needed preventive programs. Political commitment to the Primary Health Care approach by the Sandinista government contributed to the creation of a universal health system, extension of coverage in the 1980s and clear impact on infant mortality. However, it has been an ongoing challenge to achieve the goals of prevention, equity and participation within a relatively restricted national budget (Bossert, 1981). – and a low-intensity war during the decade of the 1980s.

Over the past two decades, Nicaragua's health system has transitioned from the Primary Health Care model implemented in the 1980s and early 1990s to generally more market-focused economic policies. Since the 1990s, decentralization of health and health-related services has been accompanied by structural adjustment, resulting in reduced equity and accountability. According to Birn et al (2000), Nicaragua has used decentralization policy to restructure the health systems through health spending cuts and the favoring of curative over preventive services; privatization and the promotion of user fees as well as confusion of lines of accountability. This has induced the segmentation, fragmentation of the health sytem. Other authors, for instance Jack (2003) have underlined the fact that local decision-making authority within the health services sector has been increased by allowing managers more freedom to allocate inputs and that accountability *in principle* has been strengthened.

In 2007 the new government identified health, education, water, production, energy, infrastructure, and citizen's participation as key-priorities within the national development plan. The recognition of the need to establish a rights-based and people-centred approach to health development implied a reorientation of the health policy for 2004-2015. The new policy is based upon the fundamental principles of social justice, equity, participation, solidarity, universality, free access to health care and an improved balance between prevention of disease, promotion of health and the cure of ill-health.
Health is considered a social construct and a cross-cutting issue in all social and economic policies[3]. From 2007 onwards, emphasis is to be placed on the strengthening, articulation and transformation of the national health system and to reorient the prevailing approach of health that has been mainly reactive, focusing on disease and risks, without enhancing the underlying social determinants of health (Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2008).

The new *Modelo de Salud Familiar y Comunitario* (MOSAF, model of Family and Community Health) is to be based therefore upon an integrated concept of health care, *"with a focus on health promotion, the prevention of health hazards in order to address the complex health and determinants in specific contexts and by including traditional and popular medicine".* (Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2009). Finally, a continuing process of monitoring and evaluation should enable monitoring of effectiveness and impact

[3] The implementation of new social housing schemes, the donation of 25,000 propane gas kitchens (of a planned 200,000) to families that live in poverty, the programme Hambre Cero (beneficiaries:28,000 women in rural areas) and the micro-credit programmes (beneficiaries: 15,000 women in urban areas) that have been developed during 2008 are expected to have a positive impact on health by reducing poverty and e.g. respiratory diseases(Gobierno de Reconciliacion y Unidad Nacional and MINSA 2009).

of health action on population health as well measuring progress in terms of community mobilization, and citizen's participation in the *Consejos del Poder Ciudadano* (CPC, council of citizen's power)[4].

5 Quality of Care at different levels

5.1 An impression from challenges in Primary Care [5]

Structure

1.Organisation of care (staffing levels, infrastructure)

"The health centre in Subtiava [Leon] *is located in what used to be the house of a wealthy family before the 1980s and it has electricity, water and light …. it has 6 satellite* ***health posts where there is no water or electricity****… and the units provide basic health services to the district of Subtiava with a total population of 42.330 inhabitants. .. Apart from general practitioners, there is a gyneacologist, a paediatrician, and a specialist in internal medicine. The health centre also has many medical students…Referral takes place to the academic hospital in Leon.. Radio contact exists with two health posts . There is no vehicle.. this causes problems in case of emergencies."*

"..the health centre Sylvia Ferrufino [Managua]*…used to be a motel and was confiscated to become a health centre*[6]*… it has 6 satellite health posts … and provides care to a population of 116.430 persons. There are 15 general physicians, 2 gynaecologists, 1 paediatrician, 17 nurses, 10 auxiliaries….Referrals can be made to several hospitals…In principle we should have electricity, water and light. However, we had* ***no current water*** *and the electricity was interrupted continuously…The laboratory is deficient and patients are referred to private laboratories... There are two vehicles, and a bicycle, but no ambulance. There is no possibility to communicate with the health posts. There is* ***a shortage of the most basic equipment*** *(tensiometers, thermometers, gloves, …etc)..The available equipment has been bought by the health workers themselves.. "* (Biemans 2005), p. 12-13

"The most difficult aspect of this case was that in the hospital there was ***no possibility to test*** *her for dengue…It is possible in Nicaragua, but only in private clinics. Therefore the final diagnosis in this case will always be unclear.."* (Nonner 2009)[7],Case woman, 29 yrs of age with dengue hemorrhagic fever (p. 13)

"…Diabetes complications are chronic and difficult to treat. In particular in Nicaragua where there is ***a lack of good blood sugar*** *control…. There are no "curves" for a whole day, and HBA1C was not available… Chronic patients were controlled every 3 months by their doctor on their fasting blood glucose level. People were instructed to eat healthily , do sufficient excercise and refrain from soda… Furthermore, people were educated about the disease, its mechanisms and complications…So, despite the diagnostic restrictions, this part of the health system has developed very well.."*

2. Information system

.."*the follow-up of patients is not accurate and medical records are not complete in both health centres…hardly any notes are taken by medical staff…."* (Biemans 2005).

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[4] MINSA, 2008, p. 6
[5] based upon a preliminary review of primary care in health centres in the Pacific Region[5].
[6] In 2007 the health centre moved to a new building.

".. registration of data appeared accurate and up-to-date. There was a motivated epidemiologist… however, the lack of precision in taking patient data [Managua and Leon] *probably influences the validity of the information system as a whole…*"(Biemans 2005), p.21

Process

1. Care (technical and interpersonal)

"The anamnesis of patients with chronic diseases .. was based upon closed questions and there was hardly opportunity to discuss the complaints of the patient. ..Often no physical examination was conducted, due to lack of space or interest by the physician . Treatment was seldom adapted in case of secondary effects or complaints…"(Biemans 2005), p. 20

"……the reaction of the doctors in the audience was interesting, they admitted that they ***prescribed too many antibiotics****, but that they had no choice, because of the pressure of the patients.."* (Nonner 2009), p. 7.

"…One of the problems which I encountered many times during my rotation was a lack of knowledge about the body and about diseases… . Many people attending the health services didn't know much about their own body and ***most patients lacked some basic knowledge*** *about diseases and disease mechanisms…… During the clinical consultations the majority of the* ***doctors didn't take time to explain anything*** *about the diseases to the patients and by not doing so ……..failed to improve the patients knowledge.."* (Haasnoot 2008), p.14

"…. at the end of the consultation patients sometimes expressed their disagreement with the treatment (especially prescriptions that they received)…… and ***in the majority of the cases the doctor admitted to the request for more or other medication****…"*.
"……during meetings of doctors and nurses I have seen discussions about how to handle patients that demand medicines. Some of the doctors indicated that it was almost impossible to refuse medicines, e.g. viral infections… What I have seen is that there is a big difference between doctors.. Some of them inform their patients very well and that leads to approval of the doctor's policy by the patients, while others do not make any effort to inform and just gave whatever the patient wanted, or even what relatives wanted… I have seen other employees (not doctors) of the centre coming to the doctor and getting whatever they asked for…(Nonner 2009),p.11

"….I talked to a nephrologist who was working at that moment at the dialysis and he said that the most important cause of renal failure around Leon and Chinandega could very well be the use of pesticides on the sugar cane fields of the Pellas family)[8]*.*
"…the problem was ***a shortage of blood*** *in the hospital. At that moment the only indications for transfusion were emergency settings…The causes of this are the fact that people do not want to give blood and that testing the blood for diseases is too expensive…… because it was not available in the hospital and the patient could not afford it, it was not an option in this case…"* (Nonner 2009), Case male, chronic pyelonephritis due to pesticide poisoning, p. 15-16.

"At the centro de salud I saw a lot of pregnant teenagers. It struck me that the medical staff responded coolly and even made blunt and direct remarks towards the teenagers...for example a remark of a paediatrician in the Centro de Salud, who asked a

[8] In 2005 renal failure was the leading cause of death in the department of Leon (MINSA 2006) The rate of acute pesticide poisoning is extremely high in Nicaragua (Corriols et al. 2009).

young mother if she knew the best method of anti-conception? At her questioning look, the doctor responded with "it's keeping your legs together.." (Haasnoot 2008), p.21

2. Prevention, health education, family planning

"All the opportunities for planning a pregnancy were available at the Centro de Salud. People could get free condoms, consultations for family planning, free contraceptives, even HIV testing. Still a lot of young women, did not use these opportunities, or only started planning their family after giving birth to their first child..(often at young age…").

"…The education concerning sexually transmitted diseases was good, with commercials on the television, in newspapers and dedicated doctors who show young people the dangers of unsafe sex…. However, family planning is something different. Certainly mothers were asked if they were using contraceptives , but this was more a formality than with an intention using this information. I did not see any campaigns to make young girls more aware of the effects of having a baby so early during their life. Furthermore was it harder to get contraceptive medicines in Nicaragua than in Holland. Every time the woman needed to have a consultation with a nurse in order to get the medicine, which takes a lot of time. Besides that, the women too easily switch between contraceptive methods, when they encountered small side effects of the medicines. As a result a couple of women used all different possibilities for contraception in a short time, and concluded that none of them was suited for themselves…" (Nonner 2009) Case teenage pregnancy, p 11.

3. Referral

"……In this case some essential shortcomings of the health care system come to light. After the first child (mother 15 years old), this one was another unplanned child. Though the mother had been to the health centre with her first baby and was counseled on the use of contraceptives, given the current situation this advice or this treatment has obviously failed..After getting pregnant despite the (incorrect) use of of contraceptive pills, ……..she didn't attend any of the pregnancy control consultations…When she finally showed up, to give birth, there was already an unpleasant unwanted situation.. During my time at the centro de salud, I rarely ever saw any correspondence from the hospital, and this situation is no different, leaving the doctor in the centro de salud, empty handed…".(Haasnoot 2008) – Case teenage pregnancy (17 yrs old), 2nd child with dysmorphy, brain damage…?, p. 21-22)

"…..What the treatment was in the hospital remains unclear, because she brought little information from the hospital…This is typical for long-term problems in Nicaragua…Because no clear guidelines are being used and intercollegiate consultation is scarce, long-term treatments can fall into chaos…Maybe a lack of patience to see how treatments work in the long-term, is also responsible for the switching between medicines…"(Nonner 2009), Case woman, 58 yrs old, with erysipelas, p. 9

4. Quality improvement (education, innovation, supervision)

"On a more structural level, one of the local solutions to this problem were the "practicas comunitarias" in which students of the FM UNAN Leon, participated. These students of medicine, nursing, psychology and pharmacy were obliged to participate for one or two years, one afternoon a week, in this program. Thus the programme was continuously equipped with students with an unfinished university education in a medically related field and with easy access to medical background literature on the subjects. Of course the obligatory aspect of the program doesn't necessarily create highly motivated young

field workers, though the students seemed involved in serving their community and improving it. They all came well prepared and with a good spirit to the weekly gatherings…" (Haasnoot 2008), p.14

"This case also shows an aspect of the Nicaraguan health care which I really appreciate: the creativity to work with the means that are available. Not only in prescribing house-remedies to substitute an unavailable medical treatment, but also in more technical aspects like using a surgical glove bound together around an arm as a tourniquet for venipuncture…"
(Haasnoot 2008), Case tuberculosis prophylaxis, child 4 yrs of age, p. 6

"... In Subtiava continous education is organised, including skills training in order to enhance quality of care.....Every Friday meetings are organised to discuss specific diseases and patient care. All health workers have to attend these sessions ..." (Biemans 2005), p. 12

"..There is a strong culture of learning [Centro de Salud Silvia Ferrufino, Managua]*… supervision and monitoring of programmes. The implementation is evaluated and the director discusses the results with all health workers... in order to improve the programmes and to solve problems. The motivation of the director has a positive impact on the other health workers…*"(Biemans 2005).

5. Towards a social determinants approach?

The challenge to ensure good quality of care at health centres within a context of limited resources and the boundaries of the biomedical model is illustrated by numerous examples. The need to move beyond a symptom-treatment mode and to address the underlying determinants of health becomes particularly clear in the description of the following case:

"….I saw a young woman, 26 years old, who came to the ward for a short consultation prior to admittance. She presented herself with pain in her left and right foot. For two years she had little granules on her left foot. These were itching and ulcerating. The patient lives in a rural district about 90 km from the city of Leon and does walk around barefoot from time to time…During this first episode the patient had been tested positive for leishmaniasis. She was treated accordingly with glucantine IM. With this treatment, the granules disappeared…. Six months after the first treatment was given at the Centro de Salud,they reappeared, now on both feet… Her left foot now shows a lesion of approximately 7x4 cm of size, with central ulceration, but no necrosis. There is no edema present, nor other deviations of the skin. A biospy of the wound showed that the leishmaniasis infection was present. The laboratory cannot differentiate between different types of leishmaniasis. Given the lab outcomes, her history and the clinical situation at the moment, she was diagnosed with chronic leishmaniasis cutanea" (Haasnoot 2008), p.29.

5.2. A perspective from the SILAIS

In 2007 a participatory base-line assessment was conducted in 95 (100%) health centres and 13 district hospitals of the SILAIS: Nueva Segovia, Madriz, Esteli, Masaya, Rivas, Rio San Juan, Leon, Chinandega, RAAN and RAAS within the framework of a disease-control programme[9] in order to identify indicators for monitoring, supervision and evaluation. Information was collected on aspects of management (team- work; planning, supervision; equipment; information systems; informed consent; surveillance; diagnostic test; availability of treatment), health promotion, the training of the health teams and the capacity of the laboratory (Soto Vasquez 2007).

It is worth noting that until 2005 the Ministry of Health concentrated health care for people living with HIV in the capital city as a specific disease-control programme. In order to increase coverage and access to care (prevention, treatment and support), the National Strategic Plan (2006-2010) of the Comision Nicaraguense del SIDA (CONISIDA) establishes the concept of *integrated care* and proposes to ensure capacity building of the public as well as private actors, including civil society and communities in order to overcome the drawbacks of single-issue approaches.

The study by Betty Soto-Vasquez observed that:

- *in 50% of the SILAIS, there is inadequate planning for equipment and a lack of medicine;*
- *some essential medicines have not been included in the basic list;*
- *there is a lack of materials for health education and information both for training of health workers and for the population;*
- *at primary care level, "health teams" for integrated care are still not functioning as a team; "activities are performed thanks to coordination among individual team-members, but there is no formal planning of meetings and specific activities"*
- *in 50 % of the SILAIS, planned supervisory visits cannot be carried out due to lack of transport and per diems;*
- *860 health workers had received additional training (MSC, diploma course, rotation or seminar). However, the total number of health workers is 5,827; this implies that there is still need to train 84% (4,428) of the health workers...."*[10]
- *the information system is one of the main limiting factors; there is are no uniform instruments for data collection and the SILAIS therefore develop local forms which hamper comparison;*

In 2008 another base-line assessment was conducted in 6 SILAIS by the Ministry of Health with support of UNICEF (Soto Vasquez 2008). The main objective was to examine the level of organization and the performance of health services in order to facilitate *integrated approaches* within the framework of the *Modelo de*

[9] HIV/AIDS: prevention of vertical transmission
[10] Soto Vazquez, B (2007), p.4 - 6

Salud Familiar y Comunitario (MOSAF) and to ensure prevention of vertical transmission as well as treatment of children living with HIV.

The study, which included all 56 health centres (100%) and the 6 district hospitals of the SILAIS of Boaco, Chontales, Carazo, Granada, Jinotega, Matagalpa, observed that:

Structure

- All health centres (100%) lack essential equipment to ensure good quality care during pregnancy and birth. In some health centres periodic evaluation meetings take place to resolve problems.
- In some health centres there is a lack of modern family planning methods.
- *"…there is a lack of materials for health education; the SILAIS of Granada – one of the districts where tourism is concentrated, showed the lowest degree of performance"*[11]
- A laboratory exists in 77% (44/57) of all health centres.

Process

- The main limitation is the management of the information system; there are no uniform instruments for data collection;
- 75.5% (43/57) of the health centres in the 6 SILAIS have organized *Clinicas de Atencion Integral* (CAI, integrated health care).
- Access to care has improved. Medical doctors are assigned to *Puestos de Salud* (health posts) and in areas with problems of geographical distance health care is provided through a combined set of actions that include mobile brigades, health fairs etc.
- Health education is provided in all health centres.
- pregnant women have to wait an average of 1 hour (SILAIS of Matagalpa and Boaco); 2 hours (Carazo,Granada); 50 minutes (Jinotega, Chontales). It is worth noting that women and children are prioritised groups.
- *"549 health workers of a total of 2,607 health workers have received training in order to provide care to patients living with HIV in order to avoid stigma and to improve quality of care"*[12]
- "*Serious limitations exist with respect to the extent of integration"*. This is mainly due to the lack of human resources, in particular nurses and the lack of the most essential equipment.
- "Integration" is also understood in different ways. *"in practice, in some health centres the sectors still need to be defined and/or integration is understood as the separate provision of care by medical doctors and nurses in different environments"*[13]

[11] Soto Vasquez, p. 9
[12] Soto Vazquez, p. 12
[13] An essential precondition for implementation of the model is the sectorial approach. Each rural sector should contain 600 families and each urban sector 1,000 families. Basic health teams are responsible for the provision of health care within a specific sector at the level of households, community, health center and network of services.

- In some health centres in the SILAIS of Chontales, Jinotega and Carazo, the delivery of care in vertical programmes still continues to exist[14];

5.3. A system's perspective: the RAAN

Challenges for ensuring quality of care and/or the relevance of approaches for reducing health inequities and social exclusion, are particularly evident in the Autonomous Regions of Nicaragua. The Región Autónoma del Atlántico Norte (RAAN) – 26.5 % of the national territory of Nicaragua- is emblematic in many ways and the following section provides a brief summary based upon rapid assessment, recent research and publications.

5.3.1. Health development and health equity

Firstly, it is worth noting that the lack of information about the real population of the RAAN is a limitation for effective planning, monitoring and evaluation[15] and therefore also to assess quality of care. According to INEC the population is 349, 846 inhabitants, of which 49.8% are women and 50.2% male; nearly half of the population (48.34%) is younger than 15 yrs.[16] (Consejo Regional Autonomo Atlantico Norte et al. 2008).

Secondly, the pace of change is very rapid while capacity to respond is limited. During 1971-1995 population growth in both Autonomous regions was estimated 219,5%[17] . In 2008 the annual population growth rate (4.6%) was higher than the national average growth rate (3.1%)(Consejo Regional Autonomo Atlantico Norte et al. 2008). According to the 1995 census, 39% of the inhabitants of the RAAN are internal migrants. This influences the multi-ethnic composition of the population and increases the Mestizo population. In 2006 35.7% of the population were Miskitus, 65% Mestizos, 0.5% Creoles and 2.1% Mayangnas.[18]

Thirdly, the RAAN is rich in natural resources, but has historically been one of the regions with the highest social exclusion and poverty in Nicaragua (Rosales et al. 2009). 43% of the population over 10 years old is illiterate and 43.6% of the economically active population has not had any professional training[19]. Illiteracy is higher in rural areas and among women. The RAAN has the lowest rate of sanitation and access to drinking water. None of the urban settlements has a sewerage system; 40% of the population defecates in the open air and only 45% of the latrines are in a reasonable condition (Consejo Regional Autonomo Atlantico Norte et al. 2008). Furthermore, only 11% of the houses have access to domestic water; and 9% depend on public sources; 43% use water extracted from holes dug into the earth and the majority of the water is not suitable for consumption; 10% depend on rivers.
Deforestation and mining practices have contributed to environmental degradation, increasing food insecurity and child malnutrition. Also domestic

[14] Chontales 9/14 (64,2%); Jinotega 3/8 (37,5%); Carazo 2/8 (25%) , p. 8
[15] According to estimates by INEC and CIDCA the population of the RAAN in 2006 was 314,130. According to URACCAN in 2006 the population was 308,000 inhabitants.
[16] Data of the SILAIS. RAAN
[17] INEC 1996.
[18] INEC, CIDCA 2006
[19] At national level 24.7 % of the Nicaraguan population was considered illiterate in 2008.

violence against women of all age groups has increased rapidly over the past few years in the RAAN. During 2004-2006, the *Comisaria de la Mujer* in Bilwi has attended 24,062 cases[20].

Table No. 1

Cases of domestic and sexual violence attended by the Comisaría de la Mujer y la Niñez. RAAN (Puerto Cabezas, Waspam, Sandy Bay, Sahsa) 2004-2006

No.	Type	2004	2005	2006
1	Murder (horrific)	2	3	1
2	Parricide	2	2	1
3	Homicide	2	1	2
4	Lesions	4	1	2
5	Sexual abuse of children	25	91	142
6	Intent of rape	9	16	29
7	Violations	76	137	166
8	Attempt of violation	5	24	37
9	Attempt of homicide	1	1	2
10	Abuse	3	9	14
11	Sexual harassment	1	5	3
12	Lesions	389	620	851
13	Threats	82	225	254
14	Abuse of minors	5	17	36
15	Disappearance	4	4	18
16	Subtraction of minors	2	4	20
17	Damage	5	6	26
18	Robbery	4	2	16
19	Incest	2	2	1
	Total	623	1,170	1,638

Source: Comisaría de la Mujer y Niñez RAAN, Policía Nacional. (Consejo Regional Autonomo Atlantico Norte et al. 2008)

The health context is determined by a range of factors, such as: social exclusion, access to education and health services, reproductive practices, deforestation, environmental degradation and it's impact on food security, the limitations of transport, access to water, basic communication, governance, the civic registration of persons as well as by access to justice. (Consejo Regional Autonomo Atlantico Norte et al. 2008).

5.3.2 Priorities - Quality of PHC

The need to bridge existing gaps between the RAAN and the rest of Nicaragua is evident. Approximately 9% of the national health budget is allocated to both autonomous regions and the lack of resources is reflected in the lack of operational capacity, the poor infrastructure and crisis of human resources. It is widely acknowledged that the health care costs in the Caribbean Coast are higher than in the Pacific and Central regions of Nicaragua, partly due to higher transportation costs, but also due to the lack of existing local health technology (Consejo Regional Autonomo Atlantico Norte et al. 2008;Rosales et al. 2009)

In comparison to the rest of Nicaragua, the Ministry of Health lacks an extensive sanitary infrastructure in the autonomous regions. In 2004 the network of

[20] without being the only organisation that provides care to these problems and without having regional coverage

Ministry of Health units in the RAAN still consists of one regional hospital, 4 health centres with beds, 1 health centre without beds, with a total of 112 health posts. There was a Centre for Ophthalmology, which was not functioning. At this moment there are two Centres for Opthalmology(Gobierno de Reconciliacion y Unidad Nacional and MINSA 2009).
Most health centres and hospitals are located in urban and peri-urban settings. 31% of the population live in 80 urban neighbourhoods, while 69% live in 477 communities and rural villages who have limited geographical access to health care. There are very few roads in the autonomous regions and most patients need to travel for several days by boat to reach a health centre.

It is worth noting that until 2007, the RAAN had a total of 17 medical doctors, 41 nurses and 1.9 ophthalmologists per 100,000 inhabitants; 4.8 hospital beds for 10,000 inhabitants[21]. In 2004, the RAAN had only two medical specialists per 100,000 inhabitants, compared to 17 per 100,000 in the rest of Nicaragua. Human resources are still limited and medical specialists are mainly concentrated in regional reference centres in urban areas. All respondents in a recent study (Rosales et al. 2009)[22] underlined the absence of medical specialists in health centres.

According to information of the SILAIS-MINSA, an extensive network also exists of community health workers, that includes a total of 782 empirical midwifes ("parteras"), 591 health leaders and 514 volunteers. There is a lack of information on the network of traditional medicine.

Table No. 2.
Community health workers and midwifes (parteras)

Municipality	Midwife "Partera"	Health leaders	CHWs/ "voluntarios"
Waspam	228	108	121
Bonanza	97	113	42
Siuna	192	192	186
Puerto Cabezas	155	93	80
Rosita	110	85	85
Total	782	591	514

Source: SILAIS. RAAN. 2007. (Consejo Regional Autonomo Atlantico Norte et al. 2008)

The new MINSA health policy (Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2009) has prioritised the development of a community-based health care model. This is able to enhance access to care (geographical, economic, functional and cultural) and has mobilized medical brigades, the so called *Brigadas del Movimiento Medico Sandinista* to isolated rural areas.[23] A recent MINSA progress report, describes that during the period of January-September 2008 the *Brigada Medica Cubana "Ernesto Che Guavara"* provided

[21] The average at national level is 31 nurses, 38 medical doctors and 4.5 opthamologists per 100,000 inhabitants; 6 hospital beds for 10,000 inhabitants. (Data IDH, 2005 PNUD)
[22] Rosales et al, p. 77
[23] MINSA, 2008, p.20

health care to 269, 039 patients[24] in the field hospitals of Muelle de los Bueyes (RAAS) and Waspam (RAAN) (Gobierno de Reconciliacion y Unidad Nacional and MINSA 2009).

It is important however, to ensure *sustainability* which is a challenge under the current circumstances, as was expressed by health managers at the policlinic Ernesto Hodgson Write in Bilwi (RAAN). Lack of resources is an increasingly important obstacle for ensuring continuity of good quality health care. (See Annex 1).

Given the limited number of medical specialists in the region, it is likely that more inexperienced doctors are often forced to address clinical conditions that would ordinarily demand specialist care, during their social service. It is worth noting that conventional academic training of medical doctors does not ensure that sufficient knowledge is acquired on the social, environmental political and cultural determinants of health, and on the role that the health sector can play triggering intersectoral action through means such as health impact assessments or participatory action research.

The director of one policlinic, covering 88 communities through a network of health units in 48 communities with a total of 162 health workers, recently expressed that:

"…due[to] the withdrawal of support to the government by many international donors at the end of January 2009, Nicaragua is now facing a period of nine months of austerity which has implications for the annual budget. The budget of the Ministry of Health has been reduced with 20% and this had an impact upon the supply of medical equipment, medicines and human resources. The policlinic therefore can no longer provide all essential medicines to patients or even ensure routine laboratory exams. In three previous years, 5-6 medical brigades were enabled to provide services to isolated communities in the rural areas, with sufficient medicines by facilitating transport, as well as per diems and food for all health workers. Probably during 2009 only three brigades can be sent…"

"Health workers recently met at the policlinic to discuss an alternative solution… and the possibility of a Sandinista Medical brigade that would be supported by local resources, transport was suggested…. .So far, this is still a proposal and during the first semester no brigade has yet been mobilized…" (Garcia L 2009)

Given the limited number of medical specialists in the region, it is likely that more inexperienced doctors are often forced to address clinical conditions that would ordinarily demand specialist care, during their social service. It is worth noting that conventional academic training of medical doctors does not ensure that sufficient knowledge is acquired on the social, environmental political and cultural determinants of health, and on the role that the health sector can play triggering intersectoral action through means such as health impact assessments or participatory action research.

[24] 180,900 patients at the policlinic; 88,139 during field visits. In 2008, 4,177 patients left the hospital; 1,725 surgeries were conducted and 1,039 births were attended (139 caesarean sections). Also, 52, 153 laboratory exams were conducted; 1,021 radiology exams; 5,846 ultrasound exams and 1,920 ECG's – in areas where this health technology was not introduced before (MINSA, 2008, paragraph 4.4.2.2).

Traditional medicine has always been considered an effective response to address health problems in the autonomous regions. However, the population perceives that the health policy by the MINSA is not taking the holistic vision of traditional/natural medicine into account in order to ensure a culturally more appropriate health care – as well as an approach that prioritises prevention - in the RAAN. This divorce of potential complementary paradigms has limited the search for relevant response to critical health problems.

According to a recent study on the *right to health* in the autonomous regions (Rosales et al. 2009), many of the inhabitants of the Caribbean Coast identified *discrimination* by health workers because of their ethnic origin, as one of the main obstacles to access health care. It was observed that despite recent policy changes health workers of the Ministerio de Salud (MINSA) tend not to acknowledge their wisdom and knowledge about traditional medicine - e.g. the use of medicinal plants and herbs in the treatment of skin diseases, burns, gastro-intestinal disorders and also local illnesses such as crazy sickness. The medicine available at health centres is strictly limited to western drugs e.g. antibiotics, and no use is made of the abundant medicinal plants that have proven to be efficacious. In addition to the lack of knowledge and sometimes respect for local culture, the often limited capacity to communicate in local languages has a negative impact on the right of patients to a dignified, human and good quality health care. Communication with health personnel is often limited to signs.

According to a nurse, a representative of a civil society organisation and naturist:

"*I think that the Ministerio de Salud should take into account … the culture of the people and this kind of medicine…and take into consideration the economic situation of the most vulnerable population in the rural areas; no sufficient attention is paid to this, because traditional/natural medicine is not only an alternative to improve health, but also mental and spiritual health. The Ministry of Health should take up its institutional role as there are many people here who practice traditional medicine..."* (Rosales et al. 2009)[25], p. 76

Another actor of civil society expressed:

… *"the local communities have their own organisational processes and structures, they have health promoters, empirical midwifes, and this community-based organisation should be properly acknowledged. I think that we should strengthen the Casas Bases at community level, as this is the place where the community organized and capacity can be strengthened…." There is a need to engage with those who practice traditional medicine in the region, either* ***curanderos*** *or* ***parteras*** *(empirical midwifes). Research provided evidence that in case of illness 60% of the population visit a curandero and only 20% the health centre. We should acknowledge this reality and act accordingly…"(Rosales et al. 2009)[26] p.76*

[25] Rosales et al, p. 76
[26] Rosales et al, p. 76

8. Human Resources

Human resources are central to equitable and comprehensive health systems. The shortage of human resources hampers the quality of service delivery. As with many mid and low income countries, Nicaragua continues to suffer from severe staff shortages and a poor distribution of health workers. Under-resourced, weakened and fragmented health systems face problems in producing, recruiting and retaining health workers, particularly in remote rural areas and in low-income urban settlements. On the other hand, intersectoral action depends upon the capacity (*quality*) of human resources to address health and determinants in a comprehensive way.

An assessment of the National Health Policy (1997-2002) provided evidence that,

"*the quality of health services is deteriorating, a situation which is aggravated by the serious problems of infrastructure and equipment in the main hospitals and health centres*" (Ministerio de Salud 2004)[27].

According to health workers quality of care not only depended on lack of job satisfaction, but was also related to "*the social sensitivity of health workers, the compliance with norms and protocols and the existence of sufficient infrastructure as well as equipment*" (Ministerio de Salud 2006).

A more recent study on performance of human resources in health in Nicaragua, concluded that the lack of sufficient resources for health sector investment, due to limited increase in public sector investment over the period 1997-2003 as well as dependence on funding by external donors, has added to the complexity of the problems (Ministerio de Salud and BM 2007). This study, which engaged 422 health workers in focus group discussions, identified critical issues related to: a) mission; b)organizational structure/ coordination mechanisms; c) management styles; d) lack of incentive ; e) corruption, lack of credibility and accountability in public management; f) training; g) human resources; h) priority setting; i) budget (Ministerio de Salud and BM 2007):

" there are many problems, but the most serious problems are related to human resources"

"there is a serious lack of human resources; … there is no possibility to hire new staff; many have retired or are close to retirement and are not allowed to perform night shifts.."

Both the migration of skilled health workers from Nicaragua to Belize, Spain, the U.S., and the growth of the private sector aggravate the crisis and present serious challenges to developing equitable and comprehensive health systems.

" we do not offer sufficient quality and care, because sometimes one nurse has to provide care to 18 –20 patients and during night shifts in this hospital there is

[27] Ministerio de Salud, Politica Nacional de Salud 2004-2015, Managua 2004.

only one health worker who is responsible for a whole ward, which I have never seen in any other hospital" – a nurse[28]

"*one of the greatest problems is the lack of training of laboratory staff, as is evidenced by the large range of laboratory exam outcomes" – a medical specialist*[29]

Also, strategies tend to focus on single or a limited number of factors and approaches often do not take into account the wider policy environment and underlying driving forces. A substantial gap also appears to exist between real health needs and priority setting. The high priority given to specific health programmes e.g. to maternal and child health, was considered to affect negatively the capacity to address other critical health problems[30].

In particular primary care settings appear to have limited capacity to resolve health problems and to ensure adequate diagnosis and treatment (Ministerio de Salud 2006).

"*the strategies are defined based upon priorities established by the MINSA and not the needs of the community."*[31]

"Given the changing burden of disease, how can health systems adapt to provide equitable and universal access to services for non-communicable diseases including mental health?"

Some health workers feel *abandoned by the Ministry of Health* and consider that they have little opportunity to participate in decision making and priority-setting processes.

".. *decision-makers at the central level of the MINSA should take into account local realities, challenges and constraints*…"

"the management style is such that we have to follow orders from MINSA and the SILAIS.."[32]

Health workers refer to the fact that they felt threatened, anxious and experienced job insecurity[33].

"*there has been no communication with the director...it sometimes seems as if when people are promoted, they lose values and respect for others…"*[34]

Management methods (cultures) have a great impact on human resources, including recruitment, deployment and retention.

"many problems are related to funding, but other issues demand planning and organization, based upon the real context…"

"there is no stimulus to motivate workers – and I do not only refer to economic rewards- but it could be fellowships, access to language courses, conferences – we have to ensure this with our own means; there is no policy.."

[28] Ministerio de Salud/ Banco Mundial 2007, p. 2
[29] Ministerio de Salud/ Banco Mundial 2007, p. 3
[30] Ministerio de Salud/ Banco Mundial 2007, p. 3
[31] Ministerio de Salud/Banco Mundial 2007, p. 9
[32] Ministerio de Salud/ Banco Mundial 2007, p. 4
[33] Ministerio de Salud/ Banco Mundial 2007, p. 4
[34] Ministerio de Salud/Banco Muncial, p. 4

Long-term sustainable impact demands financial and political commitment, overall health systems strengthening and building of training and management capacity. The new policy of the Ministry of Health has explicitly acknowledged the need "*to develop talent and capacity of human resources in order to change the Nacional Health System towards the principles and objectives of the National Health Policy*" (Gobierno de Reconciliacion y Unidad Nacional and Ministerio de Salud 2008)[35].

Training of health workers is carried out in nursing schools and in public - and in an increasing number, private - universities. There are at present 16 Faculties of Medicine and 50 private universities. It appears, that there is a need to identify what works in terms of human resources in specific contexts. The principles that should guide training for health and health-related professions are currently being defined by the MINSA.
Comprehensive multisectoral strategies at all levels often lie beyond the scope of ministries of health and human resources directorates and there is a need for transdisciplinary training of human resources for health.

Attempts to reorient medical education towards community based health care have not often succeeded. However, it is worth noting that the UNAN Leon has a long tradition of community involvement in health research (community diagnosis and popular participation). (Pena, 1994). Recently the Faculty of Medicine has initiated an outreach community based training programme for medical students in the Atlantic Coast as an effort to contextualise and improve the relevance of medical training. On the other hand, the UNAN Managua has recently introduced a policy and mechanisms to ensure a more equitable representation of medical students from public school and the poorest regions of the country (Meynard 2009).

[35] MINSA 2008, p.22

7. Participation

Nicaragua has a long tradition of participation in health development and participation of the local population in health-related activities has been given special attention. In 1979 health was defined as *"a responsibility of the state and organized communities".* The impact of the *Jornadas Populares de Salud* in the early years of the Nicaraguan Revolution is well known. Another relevant example is the *Consejos Populares de Salud*, which were established at local, regional and national level – and that during later years evolved into the mechanism of the *Consejo Nacional de Salud.* However, it is worth noting that the role of the brigadistas and their degree of accountability to the Ministry of Health and the Popular Organizations has been subject of an ongoing and long debate (Scholl, 1985). It could be questioned to what extent and despite this experience of community participation the underlying conditions necessary for truly integrated local health systems including sustained community participation have developed (Barrett, 1996) and have contributed to enhance empowerment, social inclusion and health equity.

In 1996 a research and capacity building initiative was begun by civil society and academic institutions. It was conducted in the post-conflict context in Nicaragua, Guatemala and El Salvador, when comprehensive PHC was NOT high on the agenda and health sector reform proposals were introduced by external actors (Barten et al. 2001). During the first phase of the research 91 innovative experiences in PHC were identified in Nicaragua and 89 in El Salvador. Capacity building and engagement of civil society, policy makers and academics took place in a range of workshops that were organized in Nicaragua, Guatemala and El Salvador in order to define and agree upon the key variables (participation, equity, intersectoral coordination, sustainability, quality of care, relevance and effectiveness) of comprehensiveness and to select the 20 most innovative experiences for in-depth study in Nicaragua, El Salvador and Guatemala (Barten et al. 2009)[36]. Health systems in the region have developed ad hoc under the influence of health ministries, international organizations, social security institutions and religious organizations (Barrett, 1996). The rationale for the study was the need to contribute to evidence-based reform for health and health equity. However, the Nicaraguan case is a clear example that illustrates that the changing configuration of a health system is a dynamic process and the result of negotiation and power-imbalances among several constituencies amid changing conditions in the global context (Donahue, 1986).

It is worth noting the role that social movements including civil society organisations in Nicaragua have played in ensuring the principles, values and strategies of primary health care in Nicaragua, in particular in a decade when interest in the Primary Health Care was limited (Cruickshank, 2000).In 2009 the

[36] Quality of care in that study was defined as a concept that integrated all the other variables.

Movimiento Comunal Nicaraguense, a social movement that was established in 1978, received a prestigious award, the *Premio de Poblacion de Naciones Unidas 2009* for its active role in enhancing health equity including sexual and reproductive health rights in Nicaragua (Picado 2009).

8. Concluding comments

Firstly, the health status of the Nicaraguan population has improved gradually over the last decades, although there has been no lessening of the health divide. Almost half of the population live in conditions of poverty. Social exclusion, environmental degradation, forced internal and external migration, the lack of intersectoral action etc. continue to pose major challenges for health development and equity. Also, the failure of other sectors to address health determinants and resultant pressure appear to have exceeded the carrying capacity of the health sector. Ill-conceived health sector reform appears to have exacerbated fragmentation, while the lack of resources, the dependency from external donors, and the shortage and ill-distribution of human resources continue to constitute important constraints. On the other hand, decentralization of decision-making may have offered renewed opportunities for health development (Montiel & Barten, 1998). The imperative to enhance health equity appears particularly urgent in the RAAN.

Secondly, Nicaragua's new health policy has prioritised the provision of free health services, quality of care, prevention, and a focus on the poor. Emphasis has been placed on the need to strengthen, articulate and reorient the national health system in order to ensure a rights-based and people-centred approach to health, as well as to enhance health equity, ownership, and sustainability. The new *Modelo de Salud Familiar y Comunitario (MOSAF)* is based upon an integrated concept of care. The mobilization of health workers and communities has contributed to a significant increase in the provision of health services in remote areas of the country. However, there is a shortage of medicine and of initiatives that complement the provision of medical care and address the upstream factors of ill-health. Ensuring continuity of care appears to be a critical issue, as does greater preventive action.

So far, relatively little research has been conducted to evaluate the effectiveness and health equity impact of specific public health programmes and policies, with still less examining the quality and sustainability of primary health care. Some health centres assess quality of care by review of clinical files in order to improve patient care and user satisfaction. It would be interesting to examine the extent to which the balance between curative care, prevention of diseases and the promotion of health is improving, with ensured sustainability. There appears to be a limited culture to assess the health impact of policies on a systematic basis, less even so the health equity impact of other policies. Information systems are still weak and need urgent strengthening, with emphasis placed on developing a continuing process of evaluation and monitoring. (Gobierno de Reconciliacion y Unidad Nacional and MINSA 2009). This will provide an important opportunity to evaluate the effectiveness of public health programmes and policies and to examine and enhance quality of care.

The importance of ensuring both sufficient resources and better coherence is clear. This would include building upon lessons learned, particularly around

issues such as comprehensive primary health care and intersectoral action for health in Nicaragua. Secondly, there must be engagement with initiatives developed by civil society and community-based organizations in order to address challenges and critical problems such as disability, maternal mortality, and to enable empowerment of community-based organisations and ensure sustainability. This is especially important in the area of human resources where challenges in training, retaining, deployment and recruitment need to be addressed in order to contribute to a well functioning national health system. Finally, there is a need to evaluate the health impact of the evidence-based policies by international organizations (Barten, 2003).

Literature Cited

Barrett, B. 1996. Integrated local health systems in Central America. Soc. Sci.Med. Vol. 43, No. 1, pp 71-82.

Barten F, Montiel R, Ricarte G, Espinoza E, De Vos P, and Salazar G. 2001. Rescate de Experiencias Locales Innovadoras en Salud. Desarrollo Alcanzado por los sistemas de salud en Guatemala, El Salvador y Nicaragua, centrado en los esfuerzos de la sociedad civil 1992-2000. Informe Final EU/INCO IC18*CT960058. University of Nijmegen.

Barten F, Montiel Perez R, Espinoza, E, Morales, C 2003. Democratic governance-fairy tale or real perspective? Lessons from Central America. Environment and Urbanization, Vol 14, No. 1 129-144.

Barten F, Rovere M, and Espinoza E. 2009. *Salud para Todos. Una meta alcanzable para pueblos movilizados y gobiernos comprometidos.* Buenos Aires: IIED.

Biemans A. 2005. Verschillende aspecten van gezondheidszorg in Nicaragua. Curatie, preventie, promotie en rehabilitatie. Gezondheidscentra Sutiava in Leon en Silvia Ferrufino in Managua. Radboud Universiteit Nijmegen.

Birn, A.-E., Zimmerman, S., Garfield, R. (2000). To decentralize or not to decentralize, is that the question? Nicaraguan health policy under structural adjustment in the 1990s. Int. J. of Health Services, Vol. 30, Issue 1, p. 111-128.

Consejo Regional Autonomo Atlantico Norte, Comision de Salud CRAAN, Coordinacion de Gobierno Regional, and Secretaria de Salud GRAAN. 2008. Modelo de Atencion Intercultural de Salud de la Region Autonoma Atlantico Norte de Nicaragua. Bilwi, RAAN.

Corriols M et al. 2009. Incidence of acute pesticide poisoinings in Nicaragua: a public health concern. *Occup. Environ Medicine* 66: 205-210.

Cruickshank, C (2000). Report from Nicaragua: midwifery and structural adjustment. Journal of Midwifery & Women;s Health, Vol 45, No. 5. September/October 2000.

Donahue, J (1986). Planning for Primary Health Care in Nicaragua: a study in revolutionary process. Soc. Sc. Med. Vol 23, No 2. pp 149-157.

ENDESA. 2007. ENDESA 2006/07.

Garcia L. 2009. Identification de retos y de prioridades para mejorar la Atencion Primaria en Salud. Policlinico Ernesto Hodgson Write, Bilwi, RAAN.

Gavidia V, Urbina M, Flores O, Villacres N, and Papart J. 1988. Evaluación de la calidad de la atención medica al parto en el Hospital Bertha Calderón. Evaluación de la calidad de la atención medica al parto en el Hospital Bertha Calderón., CIES UNAN.

Gobierno de Reconciliacion y Unidad Nacional. 2008. Plan Institucional de Corto Plazo. Managua.

Gobierno de Reconciliacion y Unidad Nacional, and Ministerio de Salud. 2008. Politica Nacional de Salud. MINSA 2008: !Salud, un derecho de todos, una inversion para el desarrollo!

Gobierno de Reconciliacion y Unidad Nacional, and Ministerio de Salud. 2009. Politica Nacional de Salud. MINSA 2008: !Salud, un derecho de todos, una inversion para el desarrollo!

Gobierno de Reconciliacion y Unidad Nacional, and MINSA. 2009. Informe de Gestion Institucional. Ministerio de Salud. 2008. Managua.

González C, and Piura J. 1997. Gerencia de la calidad total en dos centros de salud de Managua. 1997. Gerencia de la calidad total en dos centros de salud de Managua. 1997, CIES UNAN.

Haasnoot A. 2008. Rotation Health Care in Developing Countries, Leon, Nicaragua. 1 September-1 December 2008. Radboud University Nijmegen.

INEC. 2008. Encuesta Nicaraguense de Demografia y Salud, ENDESA 2006/07: Informe Final. Nicaragua: Ministerio de Salud.

INEC, and MINSA. 2004. Encuesta Nacional de Discapacidad (ENDIS) 2003. Nicaragua, Instituto Nacional de Estadisticas y Censos. Managua: INEC MINSA.

INIDE. 2005. "Censo de Poblacion 2005." Available from http://www.inide.gob.ni.

Jack, W. (2003). Contracting for health services: an evaluation of recent reforms in Nicaragua. Health policy and planning; 18(2): 195-204.

Mayez D, Suazo E, and Pastora AL. 2003. Calidad de atencion conforme estandares de garantia de la calidad en la sala de labores y partos en Comayagua. Calidad de atencion conforme estandares de garantia de la calidad en la sala de labores y partos en Comayagua, CIES UNAN.

Meynard F. 2009. Formacion de recursos humanos. Personal communication

Ministerio de Salud. 2003. Analisis de Situacion de Salud. Propuesta plan nacional de salud. Managua: MINSA.

Ministerio de Salud. 2004. Politica Nacional de Salud 2004-2015. Managua.

Ministerio de Salud. 2006. Diagnostico de situacion salarial en el sector salud en Nicaragua.

Ministerio de Salud, and BM. 2007. Estudio del mejoramiento del desempeno de trabajadores de salud en Nicaragua. Resultados de grupos focales con Medicos y Personal de Enfermeria de Hospitales de Nicaragua. Managua: MINSA, Banco Mundial.

MINSA. 2005. SINEVI Sistema de Informacion . Indicadores de Salud Materno Infantil por SILAIS, Nicaragua 2005. Managua: MINSA.

MINSA. 2006. Estadisticas MINSA.

MINSA. 2009. Situacion de Mortalidad Materna, Peri Natal y Neonatal. Semana Epidemiologica 1 a la 19 Anos:2008-2009. Managua: Ministerio de Sald, Direccion General de Servicios de Salud.

MINSA/OPS. 2008. Exclusion en Salud en Nicaragua. Managua.

Montiel, R & F. Barten, (1998). Urban governance and health development in Leon, Nicaragua. Environment and Urbanization, Vol. 11, No. 1, 11-26.

Nonner T. 2009. Rotation Health Care in Developing Countries Leon, Nicaragua, December 2008-February 2009. Radboud University Nijmegen, The Netherlands.

PAHO. 2007. Health in the Americas - Volume II - Countries., 505-530.

Pena Rodolfo, Thorn A, Aragon A (1994). Results from a community intervention project in the Nicaraguan mining community El Limon. An overview. Soc. Sc. Med. Vol 38, No. 4, pp 623-629.

Perez Montiel R, and Barten F. 2009. La calidad de la atención a niñas y niños discapacitados en Nicaragua.

Picado E. 2009.
Palabras del companero Enrique Picado A. en su representacion del Movimiento Comunal Nicaraguense por motivo de la entrega del premio de Poblacion de Naciones Unidas 2009, 1 de Junio 09, en la sede de Naciones Unidas, Nueva York..

Roemer MI, and Montoya-Aguilar C. 1988. *Quality assessment and assurance in primary health care*. Geneva: World Health Organization.

Rosales A, Zapata J, and Cardoza J. 2009. Estado de los derechos humanos de salud en la Costa Caribe Nicaraguense. eds Bluefield Indian & Caribbean University (BICU), ODHAI and OPS.

Sanchez A. 1993. Análisis de la calidad de la atención de la salud en la atención primaria en salud (1993). Análisis de la calidad de la atención de la salud en la atención primaria en salud (1993)., CIES UNAN.

-----. 1995. Análisis de la calidad de atención a partir de la percepción de las usuarias y de los profesionales en tres Centros de Salud públicos de la Ciudad de Managua, Nicaragua, 1995. Análisis de la calidad de atención a partir de la percepción de las usuarias y de los profesionales en tres Centros de Salud públicos de la Ciudad de Managua, Nicaragua, 1995., CIES UNAN.

Scholl, E (1985). An assessement of community health workers in Nicaragua. Soc. Sci. Med. Vol. 20, No. 3 pp 207-214.

SISNIVEM. 2009. Informe del Sistema de Vigilancia Epidemiologica Nacional 2005, 2006, 2007, 2008. Managua.

Soto Vasquez B. 2007. Prevencion de la Transmision Vertical Madre-Nino. Linea de Base en SILAIS de Mayor Prevalencia. Programa VIH-SIDA Nicaragua. Informe Final. Managua: Ministerio de Salud. Direccion General de Control y Aseguramiento de la Calidad. Programa ITS-VIH/SIDA, UNICEF.

Soto Vasquez B. 2008. Prevencion de la Transmision Materna Infantil. Linea de Base en seis SILAIS. Componente VIH-SIDA Nicaragua. Informe Final. Managua: Ministerio de Salud. Direccion General de Servicios de Salud. Componente ITS-VIH/Sida. UNICEF.

Wong Y, Garcia L, and Rodriguez E. 2003. Percepcion de la Calidad de la Atencion de los Servicios de Salud: Perspectivas de los usuarios, Matagalpa. Percepcion de la Calidad de la Atencion de los Servicios de Salud: Perspectivas de los usuarios, Matagalpa, CIES UNAN.

Zelaya E et al. 1997. Gender and social differences in adolescent sexuality and reproduction in Nicaragua. *Journal of Adolescent Health* 21: 39-46.

ANNEX

Box 1. Identifying challenges and priorities to improve PHC in Puerto Cabeza

Puerto Cabeza, the departmental capital of the Región Autónoma del Atlántico Norte (Puerto Cabeza-RAAN), has an estimated total population of 82,548 inhabitants of which 43,758 inhabitants live in rural areas; 59.7% of the population lives in extreme poverty. The majority of the population is involved in small-scale fishing and agriculture activities, mainly for auto-consumption. 77% of the population belong to the ethnic Miskito, 15 % Mestizo, 5% Creole and 3% Sumo. Official languages in the Autonomous Regions of Nicaragua are – in addition to Spanish - Miskita, Mayagna, Rama and Creole. Only 2,532 families have domestic access to drinking water; the majority of the population depends on community sources. There is no sanitation in Puerto Cabeza, and the majority of the population uses latrines. Waste is mainly burnt or buried; waste is only collected in 11 of the 30 neighbourhoods. Major health hazards include flooding (due to hurricanes and tropical storms), the inadequate waste management, the bad condition of latrines and pits, untreated industrial waste, deforestation and forest fires, open air defecation, lack of management of coastal zones and communities located near to river borders.

The new government has developed a new model for health care that integrates western biomedical medicine and traditional medicine, providing free, people-centred and integrated health care. A model has been implemented and a pilot will begin in July 2009 (Consejo Regional Autonomo Atlantico Norte et al. 2008). The Ernesto Hodgson Write policlinic in Puerto Cabeza provides health care to 88 communities through a network of sub-centres and health posts distributed in 48 communities, with a total of 162 health workers. Quality of care is assessed on a regular basis by review of clinical files and interviews to assess user satisfaction in order to improve and ensure quality. An assessment of challenges in terms of access to health services was obtained through in-depth interviews with 10 pregnant women at the policlinic of Puerto Cabezas (see table for demographic data).

General data	
Age	Ranging between 16-32 yrs. 6 of the 10 women were younger than 25 yrs.
Civil state	4 single, 2 married and 4 with stable partners.
Language	The maternal language of the 10 patients was Miskito and 4 women spoke Spanish.
Employment	None of the patients had formal employment; 4 women worked in agriculture, but without stable income
Procedencia	6 patients came for rural communities; the other women lived in Puerto Cabezas.
Living conditions	None of the patients owned a house; they all lived with family members in often crowded conditions with limited basic services (6), having to buy drinking water.

The major problem with respect to access to health resources was distance due to the geographical location of their communities. Some women had to walk two hours to reach the nearest road and to access public transport. The average cost of transport is 150 cordobas (US$ 7.5). Although there is a health centre nearer to their communities, the lack of medicine, laboratory tests and health personnel meant that the women preferred to travel. All the women were satisfied with the health care provided by the policlinic, where they had received information how to prevent pneumonia, diarrhoea, malaria, STI's, etc. This information had been provided at the health centre and by radio.

"There is a positive reorientation of health care provision. Before, health care was only provided from 7am to 3pm; with the new government the policlinic is open until 10pm for all emergency care". The patients had no information about the responsibility of the government for population health. All patients considered that the Ministry of Health was for taking care of their health needs. However, they perceived that access to medicine in the health centres had diminished and, due to lack of resources, no routine laboratory tests are performed. *"Before I received all prescribed medicine, but now I only receive some and sometimes I have to buy it ".* In order to cover costs of medicine some women are sometimes forced to sell personal items. The policlinic however intends to respond to their health needs within the limited existing resources; and if the patient needs to stay in town, the policlinic ensures access to the Casa Materna, where the patient and accompanying family or friends are lodged and receive free meals. The patients had not yet received information about the new model of health care that is to be implemented.

Source: Garcia, L (2009) Identifying challenges and priorities to improve Primary Health Care. Puerto Cabeza-RAAN
Consejo Regional Autonomo Atlantico Norte, Comision de Salud CRAAN, Coordinacion de Gobierno Regional, and Secretaria de Salud GRAAN. 2008. Modelo de Atencion Intercultural de Salud de la Region Autonoma Atlantico Norte de Nicaragua. Bilwi,RAAN.