Matern Child Health J (2016) 20:2451–2456
DOI 10.1007/s10995-016-2193-8

CrossMark

NOTES FROM THE FIELD

Reflections on Serving Remote Mountain Communities: Mobile Hospitals and Women's and Children's Health Care in Northern Haiti

Rose-Marie Chierici[1,2] · **Thony Michelet Voltaire**[3]

Published online: 19 November 2016
© Springer Science+Business Media New York 2016

Abstract In 2003 Alyans Sante Borgne's (ASB) conducted the first week-long mobile hospital in Molas, a poor mountain community a 10-h walk from the main hospital in the town of Borgne in North Haiti. ASB is a partnership between Haiti Outreach—Pwoje Espwa (H.O.P.E.), a US-based NGO, and Haiti's Ministry of Health. The paper reflects on this first experience and the evolution of an indigenous model of health care delivery, Sante Nan Lakou (SNL)/Health at the Extended Family Level, a model that prioritizes the needs of patients over those of the institution. It highlights the challenges of providing quality care to a much neglected segment of our population and documents the impact of this event for the community and for ASB. Lessons learned during that week shaped ASB's response to the root causes of women and children's poor health in the commune of Borgne. The response is articulated in a holistic grassroots program called Sante/Health, Edikasyon/Education, Ekonomi/Economy for Fanm/Women (SEE Fanm). SEE Fanm is a constellation of programs and initiatives that together brings quality care to women and seeks to empower them to take charge of their health and wellbeing and, by extension, that of their families and communities.

✉ Rose-Marie Chierici
chierici@geneseo.edu

Thony Michelet Voltaire
thaniellie@yahoo.ca

1 Department of Anthropology, SUNY Geneseo, 1, College Circle, Geneseo, NY 14454, USA

2 Haiti Outreach-Pwoje Espwa (H.O.P.E.), 121 N. Fitzhugh St., Rochester, NY 14614, USA

3 Alyans Sante Borgne, Hôpital Communautaire de Borgne, Borgne, Haiti

Keywords Health outreach to mountain communities · Indigenous model of community health · Women's health · Women empowerment

Significance

This paper describes an indigenous model of health care delivery that Alyans Sante Borgne is deploying in the rural north of Haiti. It addresses the barriers to health that women and children living in remote mountain communities experience and the response that Haiti Outreach-Pwoje Espwa (H.O.P.E.), a US-based NGO, and its local partners are implementing.

Purpose

This paper describes and evaluates a community-focused model of health care delivery to populations living in remote and resource poor mountain villages in the commune of Borgne, on the northern coast of Haiti. It offers insights into some of the challenges to health and well-being that women and children living in these mountain communities face and the survival strategies that helped them survive in spite of severe odds. It also outlines solutions that Alyans Sante Borgne (ASB) developed in collaboration with local grassroots organizations to address these challenges and bring quality health care to remote communities. ASB (Borgne Health Alliance) is a partnership between Haiti's Ministry of Health and Haiti

Outreach-Pwoje Espwa (H.O.P.E.), an NGO located in upstate New York.[1] In rural Haiti, a hospital is a one-stop health service center for in- and out-patient services. Patients come to the hospital in the town of Borgne for regular visits as well as special services such as pre- and post-natal clinics, dental care, nutrition program, as well as laboratory tests, medicines, and screening and treatment for tuberculosis (TB), HIV/AIDS, and cervical cancer. The hospital also has a delivery room and maternity ward, and a new gynecological surgical unit. We noticed early on that patients who lived close to the hospital in town tended to use services more frequently but that the further away they lived, the more difficult it was for them to make the journey down the mountains for care. As it can take up to 10 h to walk from the most remote mountain villages, women tend to postpone coming to the hospital in town and prefer delivering at home with Traditional Birth Attendants (TBAs) rather than make the trip. Too often, women experiencing problems are carried from their villages on doors and some do not survive the arduous trip to the hospital. Sante Nan Lakou (SNL)/(health at the level of the extended family) is ASB's response to this situation and mobile hospitals one of the strategies used to reach the population in their lakou,[2] where they live.

This paper describes the first mobile hospital that ASB organized with and for Molas, a very remote mountain community. It also highlights the lessons learned along the way and how these lessons helped shape Sante/Health, Edikasyon/Education, Ekonomi/Economy for Fanm/Women (SEE Fanm)/, the women-centered program that ASB has established.

Description

The commune of Borgne[3] is located on the northern coast of Haiti, west of Cap Haitian. It is a highly mountainous region of about 100 square miles extending south of a northern coastal plain. Eighty percent of the 70,000 inhabitants of the commune live in mountain villages accessible only by rough footpaths. The only motorable road in the commune is a single one-lane road that reaches the town of Borgne on the coast and meanders inland across rivers to reach the village of Tibouk, about 10 miles south of town. Tibouk lies at the heart of the commune at the confluence of several valleys. It is therefore an important hub. As people in Borgne say, everything flows through Tibouk, rivers, crops, and disease. Traveling into the remote regions of the commune may take a good walker up to 10 h and feels like traveling back in time. The majority of the population lives in dire poverty: almost all rely on subsistence agriculture and meager fishing; women trade surplus crops at local and regional markets; the level of education in the area is very low; and access to clean water and sanitary facilities is out of reach of the majority. Given the poverty and isolation, designing a system to bring health care that meet the needs of people where they live presents interesting challenges. SNL is ASB's answer to this challenge.

Sante Nan Lakou

The rural district of Molas is the most remote and difficult to reach region of the commune of Borgne. Serving this area's population has been a high priority for ASB, and SNL was the strategy to reach this goal. SNL is an indigenous model of health care delivery; its aim is to reach families in their own environments, their own lakou. The model prioritizes the needs of patients over those of the institution and reverses the traditional model of health care delivery in the developing world—rather than expecting patients to come to the hospital in Borgne for their health needs, through SNL ASB would go to patients where they live. SNL is a capillary system with the hospital in the town of Borgne as its hub—services flow out from the hospital toward the communities. The hospital houses essential services including internal medicine, women's health, maternity, pre-and postnatal services as well as community health services—TB and malaria clinics, HIV/AIDS and cholera treatment program, family planning and a nutrition program, and a well-equipped laboratory and pharmacy. A gynecological surgical facility and neonatal unit as well as a state of the art dental clinic are the only such facilities in the rural north. The next node of the system, Clinique Bertrand/Bertrand Health Center is centrally located in Tibouk, described earlier. The health center provides essential community health services, in-patient care and delivery room as well as a laboratory facility and pharmacy. Mobile clinics and mobile hospitals expand ASB's reach further into the remote and underserved areas of the commune.

ASB first experimented with mobile clinics in 2007, slowly developing a model and establishing a program to serve remote communities. By 2015, ASB conducted weekly day-long mobile clinics to several sites within a 2-h walk from the hospital in Borgne or the clinic in Tibouk with a modest team of care givers carrying needed supplies and equipment. In 2013, ASB organized its first mobile

[1] Under the terms of the partnership, signed in January 2006, the Ministry (MInistere de la Sante Publique et de la Population, Department Sanitaire Nord/MSPP-DSN) retains control over medical decisions and H.O.P.E. is tasked with developing and managing a health care system for the commune of Borgne. H.O.P.E. significantly fund ASB activities. Each partner negotiates partnerships with other organizations and manages these relationships.

[2] A lakou is an extended family compound.

[3] A commune is a geographical division akin to a county.

hospital deep in the mountain region of Molas, the most remote area of the commune.

In 2015, H.O.P.E. and ASB, with funding from WomenStrong International,[4] established SEE Fanm. SEE Fanm is the umbrella under which we migrated all H.O.P.E. and ASB programs that support women's health and generally empower women to become agents of change in their families and communities through training, education, literacy programs, and income generating activities. The partnership with WomenStrong made it possible to firmly secure the foundation of the SNL model, expand its reach further into the community, and better understand and address the needs of women throughout the commune of Borgne. SEE Fanm supports two Women's Health Mobile Clinics (WHMC) a week, visiting a site in each of the seven rural districts once a month. A WHMC team includes a physician, nurse-midwife, community health nurse, laboratory technicians and pharmacy technician. They set up clinic in churches, a family's lakou, schools and sometimes in a field with stations for the various services including gynecology, pre-natal care, HIV, cervical cancer, STIs screenings, and family planning. An average of 150 women attend each clinic. WHMCs are also opportunities to do community health education and prevention, identify at-risk pregnancies, and gather insights into issues of importance to women in these rural areas. Women indicate that they like the relaxed atmosphere of the WHMCs and like having mobile clinics solely dedicated to improving the health of women and their families.

Although mobile clinics extend ASB's reach into inland valleys and mountains, many more villages lie beyond the 2-h walk radius. People in these remote communities are the most neglected and marginalized in our catchment area, and the ones of most concern to us. ASB's challenge is to figure out how best to reach those areas and design strategies to bring services to the most remote lakou. Outreach to these communities supports a better understanding of the root causes of their health problems and the impact of physical and social isolation on the wellbeing of mountain communities. Although ASB's staff includes a cadre of Community Health Workers (CHW), their impact is limited due to their level of education, limited skills, and also by the extent of territory they cover. However, CHWs have an important role in the system as the eyes, ears, and arms of ASB in remote mountain villages. CHWs conduct vaccination campaigns and disease surveillance, keep track of pregnant women, track HIV and TB patients under treatment, and identify malnourished children in need of treatment. CHWs work alongside ASB's Community Outreach Team to plan and organize mobile clinics in their rural districts and to mobilize responses to health emergencies such as outbreaks of cholera or typhoid, as well as organizing transport of women experiencing difficult labor or accident victims.

Faced with the difficult geography of the region and our limited knowledge of health conditions in distant mountain villages, the strategy that made the most sense was to organize mobile hospitals—large teams that would travel much farther than mobile clinics to grossly underserved areas of the commune. Target villages for the mobile hospitals were those villages high up in the mountains and farthest from the hospital in Borgne or Clinic Bertrand in Tibouk. The teams would set up makeshift field hospitals for a week, be ready to handle a wide range of problems, and carry enough supplies and equipment to provide care to a large number of patients. Getting people and supplies to the staging area on rough mountain paths was difficult and required careful planning and tight collaboration between the health staff, community organizations, local leaders and the community outreach team. It was a challenge that everyone embraced and worked hard to execute. The potential benefits were obvious, while 150–200 people attend a mobile clinic, we calculated that a mobile hospital could pull 2000 patients in a week. These events would also offer opportunities for community health education and prevention programs.

After months of planning and hard work, the first mobile hospital set out for the rural district of Molas in May 2013. Between 2013 and 2014, ASB organized five mobile hospitals to different sites. However, that first experience in Molas was a powerful test of ASB's model of SNL and of the staff's commitment to reach people where they live in order to better understand the root causes of their problems.

First Mobile Hospital in Molas

It is still night when the mobile hospital team heading for Molas leaves the hospital in Borgne for the 45 min ride over the mountains to Clinique Bertrand in Tibouk, where the dirt road ends. The sun is not up yet when they reach Bertrand. Staff falls into place for a "pep rally" and call to action. Dr. Thony Voltaire, the hospital's medical director, gives last instructions and reminds the team of the importance of the moment. The outline of the mountain ranges that surround the valley is barely visible as the 45 members of this team set out, single file, for the 10-h trek to Molas. They will walk over rough, narrow, rocky and slippery mountain paths, crossing several streams before reaching Molas after sunset.

Staff comments about the experience stress the sense of solidarity that they felt and how touched they were by

[4] WomenStrong International is a consortium of non-profit organizations in five nations supporting women-led solutions to urban poverty. H.O.P.E. is one of the partner organizations.

people cheering them along the way and by the crowd already assembled to welcome the team in Molas and help set up the camp. One person noted that “there was a contagious feeling of joy among the staff and a sense of purpose” in spite of the fatigue and exhaustion of the trip.

Over the week that they spent in Molas, the team saw 2689 patients, over 800 on one of those days. This first mobile hospital was another turning point for ASB—more than anything else, we came face to face with the reality of the overwhelming health needs of the population and the precarious nature of life in these mountains. This first mobile hospital cemented the aim of SNL, to reach the population where they lived in order to understand the context of their lives—access to resources, level of education, health conditions, and cultural patterns.

It took months of planning to organize this first mobile hospital and work out every detail, from identifying a location that was accessible to the largest number of people in the region, close to a reliable source of water, and had a well-organized grassroots organization. H.O.P.E./ASB’s Community Outreach Team, with the support of ASB staff and field personnel, took the lead and orchestrated the efforts, from supply chain management (medicines, food, fuel, supplies) to recruitment of volunteers, from building toilets and showers, to ensuring that there were enough tents to house staff and services. We knew from previous experience with other programs that a critical element of this mission was the support of the community and we engaged leaders at different levels in the commune to spread the word, and help motivate the community. Community Health Workers assigned to the Molas rural district were key to this effort. By the time the staff arrived at the site, the basic infrastructures were in place—showers and toilets, generators, tents and tarps, medical supplies, food, and equipment. Ninety-five volunteers from Molas committed to ensure the smooth management of the supply chain. What could have been a logistical nightmare went smoothly, caravans of mules transported more than 400 boxes of supplies and equipment and made daily resupply trip, farmers contributed fruits and vegetables from their gardens, women washed clothes and carried water.

Patients came by the hundreds. A large majority of these patients had never seen a doctor or even a Community Health Worker or health practitioner; too many suffered from diseases rarely seen in places with a functioning health care system such as malaria and parasitic infections, did not know their age or date of birth, or even traveled beyond their mountain communities.

Table 1 Numerical breakdown and description of patients treated at first mobile hospital in Molas

Categories	Total consultations
General consultations	
Children less than one	84
Children between 1 and 4	280
Children between 5 and 14	464
Pregnant women	48
Family planning clients	103
Other adults	1710

Assessment: Lessons Learned

ASB’s primary objective in organizing a mobile hospital was to expand the SNL model of health care delivery and get a deeper understanding of the lives of people in the most remote regions of our catchment area by going into their lakou. This first attempt delivered many lessons.

First, we realized that we did not fully appreciate the depth of poverty that exists in these mountains and the deep impact of this poverty on these communities. The isolation is exacerbated by the lack of roads to connect mountain villages to the rest of the commune or the country, limiting access to knowledge, markets, education, or even a sense of belonging to a nation. Dr. Voltaire commented that the staff was deeply affected by the extent of the problems they witnessed—easily treatable diseases, no longer seen in the western world, which too often led to death or life long handicaps for lack of simple care. These included a high prevalence of dermatological and parasitic infections, anemia, cardiovascular disease, eclampsia, and more.

Table 1 breaks down the 2689 patients who were treated at the first mobile hospital in Molas.

During the week, the laboratory technicians performed 3165 tests. Fifty-two pregnant women were tested for HIV and syphilis. All were negative for both. Hospital staff tested 1484 patients for HIV and syphilis. Eight of these patients tested positive for HIV (three men and five women). and 81 were positive for syphilis (34 men and 47 women). All who tested positive for HIV and syphilis were put under treatment and were encouraged to bring their partners. We saw 52 pregnant women in the pre-natal clinic. All 52 were put on folic acid therapy.

Table 2 summarizes some of the illnesses diagnosed that week. Although the data is not clear about the ratio of adult males and females, it appears that adult women and women of reproductive age were more likely to present to the clinic for care than were men.

There were severely malnourished children, children with infected wounds that would not heal, several women

Table 2 Illnesses diagnosed in first week of mobile hospital in Molas, categorized by illness type and sex

Diseases/symptoms diagnosed	Men	Women	Total
Anemia	135	299	434
Asthma	17	12	29
Conjunctivitis	7	11	18
Oral and dental problems	3	2	5
Acute diarrhea	6	10	16
Digestive problems	192	336	528
HBP	76	200	276
Acute respiratory problems	118	145	263
Kwashiorkor/marasmus	7	7	14
Intestinal parasites	385	415	800
Vaginitis		313	313
Pneumonia	4	7	11
Scabies	97	137	234
Typhoid (clinical)	4	2	6

with signs of pre-eclampsia and severe anemia, and too many stories of maternal and child deaths. Most women reported several pregnancies and multiple losses. They indicated a strong interest in spacing births or a desire for smaller families. One hundred three women signed up for the family planning program after attending a community education program on the benefits of using birth control to space births. During that week, the staff treated countless life threatening cases. Staff field notes refer to several cases of children with severe problems—a toddler with complications from unresolved respiratory problems that severely limited his breathing and growth; another with an oral infection so advanced that his oral cavity was putrid and decomposing; and a dying child with an abscess so large that he could not eat and struggled for breath. Several patients arrived on doors, carried down mountain paths—women experiencing difficult deliveries or post-partum problems, people with broken bones and others with a variety of health issues. One case stood out in particular for the staff—a woman who arrived emaciated and in great pain in the last stages of what appeared to be cervical cancer. We screened 434 people for anemia (135 men, 299 women).

Second, the depth of cultural norms and health practices in Molas had to be understood and respected by health care providers of the mobile hospital. In the mountainous regions of Borgne, people cope with disease and misfortune by using the same folk remedies and traditional beliefs that were passed down generations ago. In their worldview, diseases are mainly caused by malevolent spirits and are cured through Vodou rituals and folk healers. For people with almost no exposure to biomedicine, there is little else to explain the disease load they experience and the precarious nature of life. It is also challenging for healthcare professionals to compete with such entrenched beliefs and do so respectfully when faced with life-threatening cases.

The team encountered difficulties explaining to parents and adult patients that infections and other pathologies were not sent by jealous neighbors or angry spirits but caused by microorganisms and that while medications could alleviate suffering, they did not cure magically and healthcare workers could not wipe away disease. Experience taught us that changing these perceptions takes time and is best achieved through sustained community education, slowly building trust in the system, and through evidence. The hard work for the community of Molas began with that first mobile hospital—the first step happened when people accepted treatment and began to question previous assumptions but, most importantly, when their world began to expand. What if having swollen legs was not a sign that a pregnant woman was expecting twins but a symptom of pre-eclampsia and a sure indication that she was at risk for a complicated delivery? Living that far away from Clinique Bertrand or the hospital in Borgne, a woman in distress and the fetus she is carrying would not likely survive the trip down the mountain carried on a door! It is not unusual to see women who hemorrhaged to death on their way to the hospital or women trying to deliver while in the throes of eclampsia seizures. Convincing a nursing mother that feeding her baby the colostrum was the best way to ensure its good health but not dirty milk to be discarded, as her traditional birth attendant taught her and her mother had done before her, was not an easy task.

A eureka moment brought the precarious situation of people who live in mountain villages front and center. One of the nurses became ill and had to be transported on a door to the hospital in Borgne, putting her "in the shoes" of a woman in labor, someone with a bad case of cholera, a broken limb or a child with an infected wound or a high fever. She reported how scary it was to be tied to a door with ropes and feeling every rock and bump as the porters rushed down the rocky paths and across rivers. Staff also experienced exhaustion, discomfort when the rains came and the realization that they were literally at the edge of the modern world.

The third lesson was in regard to the level of neglect in the remote region. Nothing better illustrates the neglect that marked these communities than the dismal low rate of literacy and lack of education—most adults do not even know their age, many do not have birth certificates, and too many deaths are even recorded. Offering people courteous and affordable care at a cost they can afford also makes a difference. Patients paid 55 gourdes (about 90 cents), less than what they would pay a traditional healer, for a package of services that included the cost of a doctor's visit, laboratory tests, and medicines as well as special services such as delivery, pre-natal care and health education and

vaccinations. With 25 gourdes, less than 50 cents, they could also get dental care—granted this was mainly for pulling teeth!

The fourth lesson, as Patrick Pierre, coordinator of outreach services, noted “before all, a mobile hospital is a social activity” and the economic and cultural impact of an event of this magnitude in an isolated mountain community cannot be ignored. The mobile hospital generated a good deal of economic activity in the region. Women set up food stalls and sold snacks and drinks to patients. It was an opportunity to sell their crops without having to travel to neighboring markets. Women also did odd jobs around the hospital site such as washing clothes for the staff and carrying water. The cultural aspect of this experience is as interesting. To demonstrate their appreciation to the mobile hospital staff, folk dance groups in the area performed the kontredance and trese riban[5] and demonstrated other forms of traditional cultural practices of the region.

Staff members who participated in the mobile hospital in Molas underscore the impact of the experience. A Community Outreach worker commented “I realize that the mobile hospital in Molas is the biggest community activity that ever took place in the history of the commune and has significant potential to bring change in isolated communities”. A community leader commented that “*Li fè enpak dirèk sou lavi sosyal, sanitè, edikasyonèl ak ekonomik zòn benefisyè a, li pote yon nouvo oryantasyon ki danse kole kole ak devlopman kominotè*” [It (mobile hospital) had a direct impact on the social life, the health, the education and economy of the beneficiary community. It brought a new orientation which “dances tightly” with the notion of community development]. Others commented that it brought together “people of different social classes, religions, literate and illiterate”, all there for one reason only: to dispense and receive health care and *Fòk mwen te antre nan zantray kominote yo pou mwen te apwann epi konpwann sa* (I had to get into the “entrails” of the community to learn and understand this).

Applying Lessons Learned to the Empowerment of Women

What we learned and experienced that week in May 2013 influenced how ASB continues to expand its SNL model and directly shaped the development of SEE Fanm, a comprehensive program that focuses on meeting the needs of women and girls throughout the commune. SEE Fanm’s overarching goal is to build strong, competent women by addressing the structures, practices, and beliefs that compromise women’s health, women’s limited access to resources such as education and sources of livelihood, and their social needs such as security and a voice in decision making in their family and community. Women throughout the commune of Borgne are active participants in creating SEE Fanm, they share their experiences, express their concerns and dreams, and are committed to changes needed in their communities. The constellation of SEE Fanm programs reflect their collaboration between H.O.P.E. and the community, they include: (a) bi-weekly Women’s Health Mobile Clinics (WHMC) that rotate among key areas of the commune. WHMCs focus on bringing services to women and adolescent girls in an atmosphere women say make them at ease and free to address their health needs. Services include pre-natal care, family planning, HIV and cervical cancer screening, general health and health education; (b) Mothers’ Clubs—year-long training programs for mothers. Women learn about nutrition, signs of at-risk pregnancies, pre-natal and post-natal care, the importance of vaccinating their children, household management, violence prevention, family planning, sanitation and clean water; (c) literacy classes and civic engagement; (d) a 2-year program to train women leaders; (e) income generating activities and training in how to run a small business; and (f) adolescents and girls’ programs. SEE Fanm recently inaugurated a surgical facility, a first in the rural north. Women who need C-sections or emergency interventions no longer need to be transferred to hospitals in Cap-Haitian, a 2-h ride over crowded and bumpy roads. SEE Fanm started a training program for TBAs, especially those who practice in mountain villages and encourage them to accompany their patients to the hospital when they start labor or show signs of risk.

Conclusions

Much work remains to reach last mile communities and respond to their needs. As ASB had done over the 10 years since H.O.P.E and the Ministry of Health formed this partnership, we will continue to work collaboratively with all segments of our community to develop and implement programs and interventions identified by the community as critical for their wellbeing. Women’s and girls’ health are on top of that agenda.

[5] Contredans is a dance form that dates back to colonial times and is based on French contredance and tresse riban shares similarities to the American maypole dance.