DEVELOPMENT OF A SUSTAINABLE HEALTHCARE SYSTEM IN RURAL GUATEMALA BY EMPOWERING LOCAL HEALTH PROMOTERS

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INTRODUCTION:

The biggest obstacle to healthcare for people living in rural areas is that most residents live far away from a central clinic. It is therefore difficult for them to come to the clinic when they are sick. When we think of providing healthcare to under resourced areas, we usually think of either building a new clinic, or providing medicines and supplies to an existing one. Clinics are essential in providing healthcare to residents in the surrounding area but the majority of residents living in poverty in rural areas around the world live far away from cities, and therefore away from clinics. This is because in most cases they rely on agriculture for work.

We propose an innovative solution to delivering healthcare for people living in remote rural areas, not through a central clinic but through local villagers who are trained to treat the sick in their own villages. This idea has been around for a few decades. However, little success has been seen up to now mostly because the logistics of maintaining such a distributed network of individuals, many of whom themselves are living in extreme poverty, are challenging.

In this case study, we discuss such a system of healthcare developed and implemented by physicians at Willow Creek Community Church in partnership with Asociacion Vida, a network of local churches in Guatemala. We have seen measurable success and have found ways to overcome the challenges of maintaining this type of healthcare systems. By no means have we found the best solution for this problem, and there is still much work to be done. However, our hope is that this report can serve as a reference and a “how-to” manual for other groups looking to engage with such an endeavor.

DESCRIPTION OF THE PROGRAM:

There are approximately 100,000 native Mayan residents living in extreme poverty in Tecpan and Patzun, rural areas of Guatemala called. Most of them are illiterate and speak only native Mayan (Keqchical). They are in need of food and shelter and have no access basic healthcare. Willow Creek Community Church has partnered with a local group of churches called Asociacion Vida (AV) to bring healthcare to these people.

[Kitchen area of a typical house]

We saw early on that although AV has a clinic in the city of Patzun (which is also under resourced), most people living in these remote areas cannot get to the clinic for treatment. In 2013, we started a training program for local health promoters (*promotores de salud*) who live in the 75 villages of rural Tecpan and Patzun in the hopes that these trained individuals will be able of treat the sick in their own villages.

[Health promoters, each representing a village]

All training is led by a local doctor at the clinic. Three or four other staff members at the clinic have been charged with coordinating the program and tracking the progress of the health promoters. One of the first things we had to do was to make sure that both the health promoters from the villages as well as the clinic staff had proper incentives to keep such a program going for a long time. For the clinic staff, salaries would be paid for all activities related to the program (training, record keeping, and organizing). It was made clear from the beginning that this will remain a fixed cost even as the program continues to grow. For the health promoters, the incentive was the medical education that they would receive. Other than meals and roundtrip transportation to the clinic for classes, no other financial incentive was given directly to them.

Great consideration was given to the incentives for the health promoters because historically the lack of a proper or sustainable incentive structure was the main reason why most of these types of programs do not succeed. (We define success for such a program as continual long-term growth without rising costs.) We decided early on against financial incentives for health promoters because this would create an unhealthy dependency, which in the long run may cause more harm. We felt that training, empowerment, and creating a sense of belonging to a group with a higher purpose was sufficient for the health promoters. The first group of health promoters met at the clinic twice a month for a half day and learned basic primary care from a local doctor. Among other things, they were taught how to diagnose and treat respiratory illnesses, parasites, skin infections, and diarrhea. Emphasis was placed on preventive care so they learned how to detect malnutrition and vitamin deficiencies.

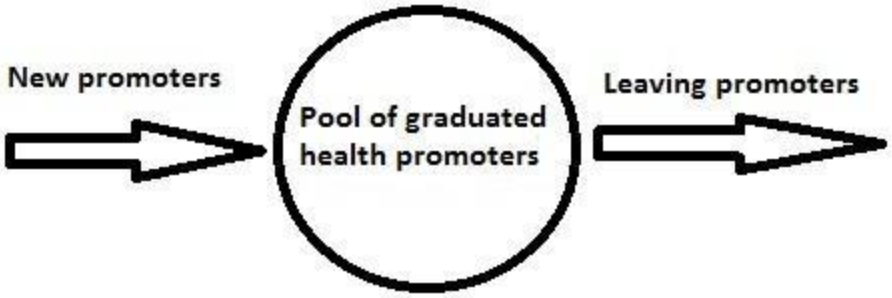
[Graduation of 18 health promoters, December 2013]

At the end of 2013, 18 health promoters graduated from the program and were given a bag of medicines and supplies that they would use to treat the sick in their villages. The agreement is that they will charge patients a fee for treating – in this way they have a financial incentive to treat. Some may argue that this is counterintuitive because the villagers they are treating live in poverty and may not be able to pay. However research shows the opposite, in that in most communities in poverty, if a desired commodity (medicine in this case) is scarce, it ends up on the black market in which case the price becomes significantly higher and is not properly administered. We felt that having trained health promoters with medicines, who are regulated by the village leaders, provides safe, proper health care at reasonable prices. Another reason for believing that patients can pay for medicines and supplies is that for centuries in the same villages, traditional midwives have been delivering babies and they charge patients. Therefore, we were confident this model would work.

After a year-long training, these graduated health promoters who are now in clinical practice come to the clinic every few months to provide feedback, and turn in treatment logs. Using the money they have earned from their practice, they then buy more medicines and supplies. If they have questions on difficult cases they are treating, they can ask the local doctor at the clinic, or ask us (doctors in the U.S.) via the Internet. Although the health promoters themselves have no access to the Internet, the central clinic does. Through these meetings, they can send us information on difficult cases and we can get back to them at the next meeting. We believe that this connection we have with them also serves as a strong incentive for the graduates.

Our long-term goal is to train a new group of health promoters each year while supporting the graduates of the program. Because the graduates are financially independent, the cost of the program would remain the same each year but the number of patients treated increase. Thus, if we were to measure the number of treatments per amount spent on the program, the ROI (return on investment) should increase every year. From our initial research into similar programs, we knew that the attrition rate would be high. As you can imagine, there are many reasons why people living in poverty may drop out of such programs. Our initial estimate was around 30% - 50% which is approximately what we have seen..

Although the attrition rate is high, the following diagram shows how the ROI (as defined above) can continue to increase each year as long as the number of newly graduate health promoters exceeds the number of those no longer practicing each year.



Our focus is on making sure graduated promoters continue to practice treating the sick and do not leave the program. This requires actively managing the program to make sure they have proper ongoing non-financial incentives – i.e.,why would they continue to do this when we do not pay them? As mentioned above, charging patients for their services is important. Equally important is the ongoing training and consultation they receive from both AV and the American doctors.

Coordination is vital to the success of such a program and is often overlooked because its components are sometimes hidden and intangible. There are several parts to coordination:

- New students:
    - Meals and transportation twice a month for a year
    - Use of the clinic facility in Patzun for training
    - Working with a local doctor to educate
- Graduates:
    - Quarterly meeting at the clinic for feedback, turning in visit logs and consultations to local/U.S. doctors
    - One-time supply of medicine and supplies to kick start their practice after graduation
- Monitoring:
    - Entering training and visit logs – we record every training session including topic discussed as well as every visit including diagnosis and treatment
    - Meetings with local village and church leaders to make sure practicing promoters are responsible

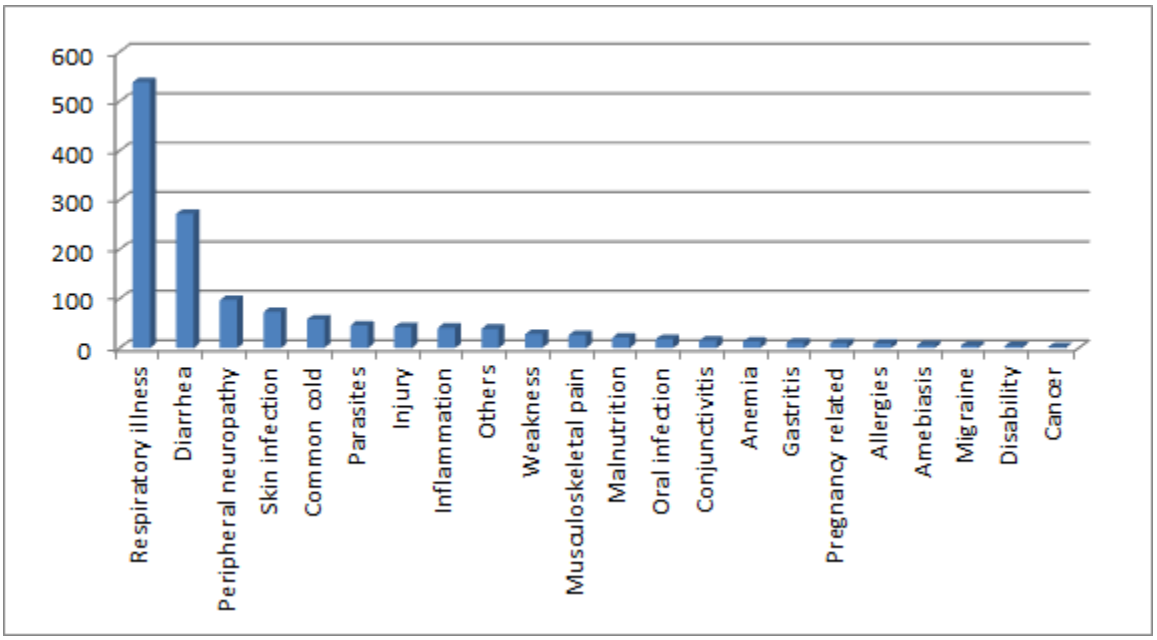
The last point is crucial. Because the graduates practice is remote areas, they can easily start acting irresponsibly. They can start charging more than they should or sell meds and supplies in the black market. Thus for each village, there is a group of leaders that is responsible for keeping them in check. If a health promoter is found to be irresponsible, the village leaders have the authority to forbid him or her from practicing. This is probably the most difficult part of the program to organize because it requires intimate knowledge of their culture. This is where working with a local organization such as AV is essential because they understand how to implement the specifics of such a complicated task or monitoring the practice of the health promoters.

RESULTS:

From January to October of 2014, the first group of graduates treated 1395 cases of various medical conditions in their own villages. The breakdown of diagnoses is as follows:

Diagnosis	**Cases**	**Diagnosis**	**Cases**
Respiratory illness	539	Malnutrition	21
Diarrhea	272	Oral infection	18
Peripheral neuropathy	97	Conjunctivitis	15
Skin infection	73	Anemia	13

Common cold	58	Gastritis	11
Parasites	46	Pregnancy related	10
Injury	43	Allergies	9
Inflammation	41	Amebiasis	6
Others	39	Migraine	5
Weakness	28	Disability	4
Musculoskeletal pain	26	Cancer	2

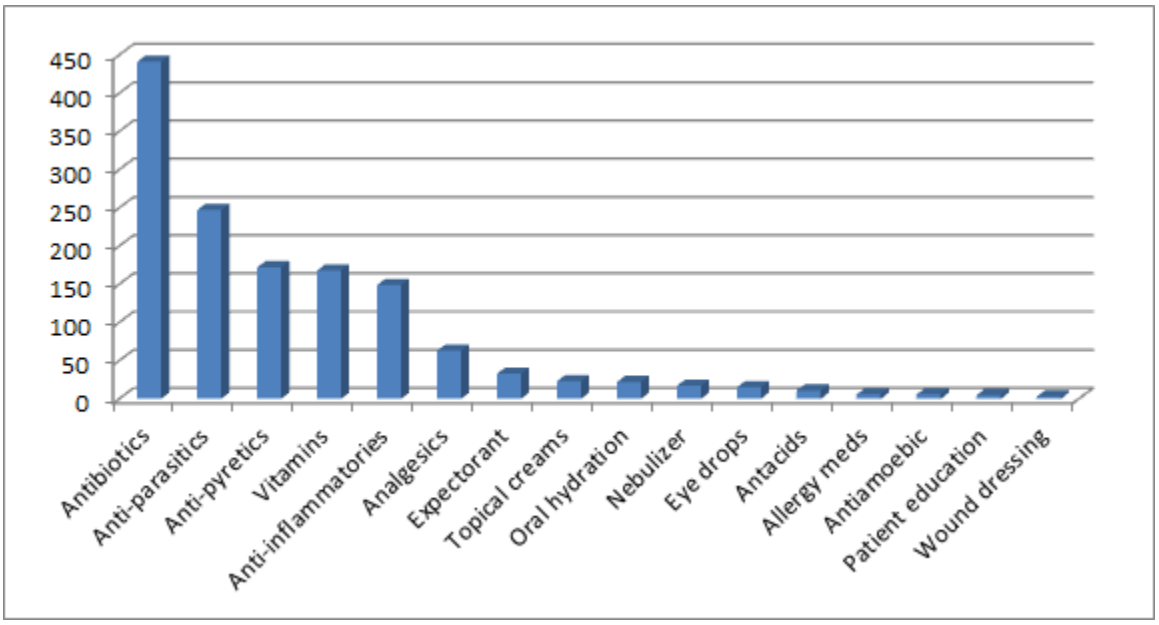


[Number of cases of different illnesses treated from January 1st to October 31st of 2014]

Such data collected directly from health promoters treating in the field is valuable in that it gives us useful information which we can then use to improve the program. For e.g. from the data we can see that the most common condition treated is respiratory illness. This was not unexpected because most homes without a modern stove burn wood continuously which contributes to development of asthma and emphysema. We had known that nebulizers would be of great use in the villages but because of the cost of these devices as well as their need for electricity, only a limited number were available. To solve this problem we have partnered with the Biomedical Engineering Department at Marquette University to test and deploy HPNs (Human Powered Nebulizers) that do not use electricity and can be used to deliver beta-2 agonist bronchodilators such as albuterol.

In addition to recording diagnoses, we collect data on treatment methods. The breakdown is as follows:

Treatment	Cases	Treatment	Cases
Antibiotics	441	Oral hydration	22
Anti-parasitics	247	Nebulizer	17
Antipyretics	172	Eye drops	15
Vitamins	168	Antacids	11
Anti-inflammatories	149	Allergy meds	6
Analgesics	63	Antiamoebic	6
Expectorant	33	Patient education	5
Topical creams	23	Wound dressing	3



[Treatment data from January 1st to October 31st of 2014]

We conclude from this dataset that a health training program such as this one developed by physicians at Willow Creek Community Church that empowers locals to treat themselves is effective in providing basic primary care to remote rural villages. We plan to continue this program in the same region for at least ten more years. We will add an addendum to this paper with annual results. Our hope is that other NGOs will see the benefits of such a program and implement their own as needs for basic primary care in underdeveloped rural areas is immense. As the recent outbreak of ebola in West Africa has shown us, this is an issue that we cannot continue to ignore.