

Infant Mortality  
And  
Maternal Mortality  
In  
Benito Martinez, Dominican Republic

A Mother's Wish Foundation  
October 2008

# Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

## Preface

Every life is precious. Every life is priceless. In the following analyses, we will be discussing human death in terms of numbers and percentages. It is the nature of the beast. Be assured that every child or mother who dies in or around our community is seen as a personal failure by us in our quest to raise a generation of healthy children.

- James Craig Pickard, Founder
- Rita Josefina Rizek, Founder  
A Mother's Wish Foundation

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

### Characteristics

A Mother's Wish Foundation established Pequeños Pasitos Clinic to provide healthcare for the five communities in an area referred to as Benito Martinez. The towns are Los Pinos, Los Pajones, El Llano, Arenoso and La Tinajita and are located approximately 19 kilometers north of Santiago on the old Tourist Road, also called Carretera Luperon. The towns border the Provinces of Puerto Plata and Santiago. Together with the Province of Espaillat, these three provinces define Region II of the Dominican Republic.

The following analyses are designed to identify the impact that the Foundation has made in these communities, and to a lesser degree the surrounding communities, against national, regional, and where possible, provincial statistics of infant mortality and maternal mortality. The source of normative data is "República Dominicana Encuesta Demográfica y de Salud 2002" which provides statistical analyses of demographics and health for the period 1997 – 2002. This should provide us with a view of what life was like before the opening of Pequeños Pasitos. We will also provide updated information for the Dominican Republic from the recently published 2007 edition, to verify that the results obtained by Pequeños Pasitos is not a part of a larger, country-wide trend.

Pequeños Pasitos began operations on May 1, 2004, providing medical consultations and vaccines three days a week in a temporary facility in El Llano. On September 13, 2004, Pequeños Pasitos moved to its permanent facility in Los Pajones and extended operations to five days per week. During October and November 2004, the Foundation completed a census of the five communities using the form provided by Public Health (Secretaría de Estado de Salud Pública y Asistencia Social – SESPAS) and continues to keep census information current.

The data regarding our service area begins with children born on January 1, 2004 and after and their mothers. The information for our five communities accounts for every live birth to the residents of our communities and the mothers who gave birth, taken from our medical records, vaccine records and the census information. Verification of the status of the children and their mothers, i.e., that the child is alive after the first year of birth and that the mother has not died due to maternal complications, was completed primarily by sight by the staff of Pequeños Pasitos or A Mother's Wish Foundation. In a few cases, the family had moved from the area and verification was made verbally through friends or family who had seen the child and mother recently. Another advantage we have to monitor deaths is that the local public cemetery is across the street from the clinic. The cemetery is used by our communities and many of the surrounding communities.

For Benito Martinez, of the 137 live births, 26 were born within the past year and, therefore, cannot be included in the Infant Mortality statistics, but all have completed a month of life and will be included in the Neonatal Mortality figures. Although some women in the community had more than one live birth during this timeframe, each live birth is counted separately, since each live birth is an opportunity for mortality for the mother.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

We have also included an analysis of the vaccines provided to children within the first year of life. The “República Dominicana Encuesta Demográfica y de Salud 2002” defined those vaccines as:

- 1 BCG vaccine given at birth in the hospital (Tuberculosis)
- 3 Anti-Polio vaccines
- 3 DPT vaccines (Diphtheria-Pertussis-Tetanus)
- 1 SRP vaccine (Measles-Mumps-Rubella)

Also, during the years 1997 – 2002, the hospitals were administering an Anti-Polio vaccine with the BCG. Sometime between then and 2004 a change was made to administer Hepatitis B and BCG.

Except for November 2006 and April 2007, the clinic had access to Pentavelent vaccine, which contains five vaccines administered together in one injection. It includes Hepatitis B; DPT; Influenza. Additionally, we vaccinate our children three times in the first year against Hepatitis B.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

### Analyses

#### Infant Mortality

Of the 137 live births in Benito Martinez, 26 were born within one year. Of the 111 remaining children, it was verified that all 111 were alive after one year of birth. One child died at two years and six months due to complications of a birth defect of the heart. It was also verified that all of the 26 children born within the past year were living one month after birth.

The infant mortality rate for the Dominican Republic for 1997 – 2002 was 31 per 1,000 live births. This was broken down as Neo-natal (the first month of birth) and post-natal (the remaining 11 months of the first year of life). The breakdowns are 22 neo-natal deaths and 10 post-natal.

Using a neo-natal mortality of 22 per 1,000 live births, of the 137 live births in Benito Martinez, it would be expected that 3.14 children would have died.

Using a post-natal mortality rate of 10 per 1,000 live births, of the 111 live births not occurring in the past year, it would be expected that 1.1 children would have died.

Therefore, we have brought our most recent 26 children through the most perilous time, their first month of life, and 111 others through their first year of life. In any other part of the country, 4 of the children would be dead.

<i>Demographic</i>	<i>Neo-natal</i>	<i>Post-natal</i>	<i>Total</i>
<i>Dominican Republic</i>	22	10	31
<i>Region II</i>	25	12	37
<i>Puerto Plata Province</i>	26	8	34
<i>Santiago Province</i>	27	14	40
<i>Pequeños Pasitos</i>	0	0	0

According to “República Dominicana Encuesta Demográfica y de Salud 2007”, infant mortality for the period 2003 – 2007 was:

<i>Demographic</i>	<i>Neo-natal</i>	<i>Post-natal</i>	<i>Total</i>
<i>Dominican Republic</i>	22	10	32
<i>Region II</i>	18	4	22
<i>Puerto Plata Province</i>	18	9	27
<i>Santiago Province</i>	21	3	23
<i>Pequeños Pasitos</i>	0	0	0

As the above chart shows, Region II and Puerto Plata and Santiago Provinces have shown improvement in infant mortality, although the country as a whole shows no change. Using the improved statistics for Region II, for the births that occurred in the Pequeños Pasitos area, 3 children are alive today because they live in our service area.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

In the surrounding towns, based on our consultation records, there have been an additional 438 live births; 390 are over one year old and 48 have been born within the year. Of these, we have confirmation of one neo-natal death and two post-natal deaths. While these statistics are also well below the National and Regional averages, the conclusions to be drawn are less scientific. The sample of patients is skewed by the fact that it only includes those women from the surrounding towns that visit our clinic. We do not have complete delivery information since we don't have nor maintain census data on those towns. And the care that they receive depends on the number of visits that they make to our clinic pre- and post-natal.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

### Maternal Mortality

Of the 137 live births in Benito Martinez, it was verified that 108 women were living. Two mothers had died; neither due to maternal complications. One was killed by a drunk driver in Santiago and the other from suspected tuberculosis. This shows that 27 births were the second and sometimes the third birth from the same woman during the 4 years and nine months of the study. For our purposes, we will use 137 women involved in 137 live births, since every live birth is an opportunity of maternal mortality. Therefore, we have verified that of 137 live births, none of the mothers have died due to maternal conditions.

At a maternal mortality rate of 177 per 100,000 live births, it would be expected that 0.2424 women would have died. At this point, there have not been enough births to make any conclusions regarding the maternal mortality rate of the mothers of Pequeños Pasitos, but we are encouraged by the continuing health of our mothers.

<i>Demographic</i>	<i>Maternal Mortality</i>
<i>Dominican Republic</i>	177
<b>Pequeños Pasitos</b>	n/a

Maternal Mortality rate for 2003 – 2007 for the Dominican Republic declined to 159 per 100,000 live births. The report, “República Dominicana Encuesta Demográfica y de Salud 2007” stated that there is no known reason for the decrease.

Of the 438 live births in the surrounding towns, none of the mothers have died due to maternal complications. These births, in addition to those in Benito Martinez, still show no conclusions.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

### Contributing Factors

The question that needs to be answered is ‘What caused these results?’ The results speak even louder because they were attained in a poor, rural area where the infant mortality rate is higher than in the urban areas. As always, we need to identify and analyze those things that are different about Pequeños Pasitos from other rural clinics.

For the most part, the other rural clinics available to the residents of Benito Martinez and the surrounding towns that we serve are Government-run facilities. Most of these clinics are staffed with a doctor on their *pasantia*, which is the required year of service in a Government facility in a rural or poor, urban setting for those who graduate from a University with a degree in Medicine before they can receive their license. They are provided no supervision. They are responsible for the administration of the facility as well as the medical care for the patients who show up at the door. Support staff varies by site. Some have a “nurse”, someone who is not licensed but has been caring for the community through many *pasantias*. Some have a person who dispenses medication, some have a receptionist and some have a doorman.

At Pequeños Pasitos, all of our physicians have completed their *pasantia* and had or received their license during their tenure here. We have a regular flow of volunteer physicians, including Family Practice and Pediatric Residents and Internal Medicine, Gynecology and Cardiology specialists. They provide our physicians with the opportunity to learn new methods of diagnosis and treatment as well as teach our volunteers treatment regimens for area-specific disease states. Additionally, our current physician, Doctora Corina Payamps, spent four weeks in Providence, RI working in both hospital and clinic settings. Our nurse, Sylvia Rosmery Suriel, has experience with Children’s International and Intensive Care in private hospitals in Santiago. She has been employed with us since September 2004. Currently, she is planning a three week visit in mid-October to Providence, RI to work with the Internal Medicine physicians and in a free clinic serving a primarily Dominican population. We maintain the services of a local Receptionist who knows all of the people who live in Benito Martinez and understands the history of many of the people. We maintain local Health Promoters who work in the clinic every day and clean the waiting areas, bathrooms and the consult rooms after each use to limit the spread of disease among the patients.

But I think that the answer to the question is found in our mission as opposed to the mission of Public Health. Any public health agency, whether it is SESPAS in the Dominican Republic or HHS in the United States, is generally passive. They build clinics and hospitals, establish guidelines for good health, license physicians and other health professionals to implement those guidelines and monitor the outcomes, as best they can.

The mission of A Mother’s Wish Foundation is to raise a generation of healthy children in this poor, rural community north of Santiago. To complete our mission we cannot afford to be passive. We need to be active, and many times aggressive, to provide the healthcare required by human beings in the twenty-first century. Of course, we built a clinic, Pequeños Pasitos, which provides free medical consultations and free medicines to all of the mothers and children who live on the mountain when they come to our door.



## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

But we are out in the community regularly, educating mothers, fathers and children about nutrition, hygiene, dental health, the need for clean air, clean water and a clean environment as well as area-specific disease states that they face daily including Dengue Fever, Infectious Jaundice and Parasites.

The Foundation hired and trained four local women, called Health Counselors, who visit every house every quarter. They check vaccine records, check for diarrhea or fevers and discuss the subject of the month as decided by our Health Committee. These subjects are continuing health educations which are timely for the community, i.e., Dengue Fever during the rainy season. The Foundation executes a Parasite Campaign every six months in which every house is visited and every resident is provided with a dose of anti-parasite medicine as prophylaxis. The Foundation holds Pap Smear Day every six months to provide all women who live on the mountain the accessibility to a Pap Smear Test locally and in an environment that provides dignity and privacy to such an intimate procedure.

Possibly the most telling examples of aggressive healthcare are with vaccines and New Mom Visits.

The Dominican Government administers the vaccine program for vaccines provided by the international community, primarily Japan and the United States. The requirements include the listing of each vaccine provided in a specific book, one for children the other for adults, entered by date administered with an identification number unique to each vaccine center. This number is assigned only to patients who are starting their vaccine regimen at that facility and is included on the vaccine card provided to the parents for use when future vaccines are administered. Due to this system, there is no way for the administrators of the facility to be able to identify which patients are due which vaccines without a long and laborious process of page turning and interrogating every record in the book. They must wait until the patient arrives at their door again and the record is found quickly by using the uniquely assigned number on the vaccine card. The system is completely passive. This is why the country was experiencing 27% compliance for all vaccines in the first year of life.

A Mother's Wish Foundation receives all its vaccines from SESPAS in Puerto Plata and complies with all of the documentation described above as well as monthly reports delineated according to the form specifications every month. Additionally, we enter all vaccines into an Excel spreadsheet that calculates the estimated date of every vaccine required by the World Health Organization for the first five years of life, based on the date of birth of the patient. With this system, we are able to query vaccines with due dates in the up-coming month and identify which child who lives in which community is due for which vaccine. Admittedly, when we began the process in 2004, we were passive in our administration. We were overwhelmed with the number of vaccines required and could barely keep up with demand. As we settled into a steady-state of operations, we saw the same effect that the country as a whole was experiencing; parents were not bringing their children into Clinic for their vaccines. Since then, we have used our foreknowledge to identify those children who are past due for a vaccine each month and we visit their house and administer it there. The results of our efforts are explained below.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

Pequeños Pasitos administers vaccines provided through SESPAS, but is not the sole source for vaccines in the area. Some children receive vaccines from other rural clinics and a few of the more relatively affluent families have pediatricians in Santiago who provide the vaccines. Therefore our sample of children who are or were 12 to 23 months during the period from January 2005 until October 2008 is 97.

Of the two views of vaccine compliance provided in “República Dominicana Encuesta Demográfica y de Salud 2002”, the most important to Infant Mortality is the percent of children who have completed the vaccine regimen as defined by the World Health Organization. The results are described in the following table.

<i><b>Demographic</b></i>	<i><b>% Complete in First Year</b></i>
<i><b>Dominican Republic</b></i>	27
<i><b>Region II</b></i>	41
<i><b>Puerto Plata Province</b></i>	44
<i><b>Santiago Province</b></i>	39
<i><b>Pequeños Pasitos</b></i>	82

The ‘percentage of vaccines completed in the first year’ for Pequeños Pasitos is less than 100% due primarily to children who moved from the area before completing their vaccine regimen and our passive approach in the beginning of operations.

The “República Dominicana Encuesta Demográfica y de Salud 2007” showed significant improvement over 2002. They also changed the segment of children to 18 to 29 months of age. Even greater improvement was made in Region II and Puerto Plata Province. Did I mention that we report into Puerto Plata? The results follow:

<i><b>Demographic</b></i>	<i><b>% Complete in First Year</b></i>
<i><b>Dominican Republic</b></i>	49
<i><b>Region II</b></i>	60
<i><b>Puerto Plata Province</b></i>	69
<i><b>Santiago Province</b></i>	55
<i><b>Pequeños Pasitos</b></i>	82

The other area I mentioned was New Mom Visits. This program was instituted in March 2006 thanks to Wendy Beyer, M.D. Wendy proposed that due to the high level of maternal mortality in the country that the clinic needed to investigate the medical condition of every new mother in the community and, at the same time, assess risk factors inherent in the environment of the home for the new child. She defined the package of materials needed to care for a newborn; blankets, caps, thermometer, dosing cup, re-hydration salts, acetaminophen, etc. When a woman in one of our communities gives birth, the doctor or nurse or visiting doctor or visiting nurse visits the new mom at her home, assesses her condition, the child’s condition, the ambiance and delivers and explains the use of all of the items in the package for the new child.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

An example of the impact of this program is Maria Mariela Dominguez. Maria lived in Los Pinos and delivered her first child on September 15, 2007, at the age of eighteen. Our doctor visited her five days later and found the infection shown in the picture below. The hospital had released her with three prescriptions, including one for an anti-biotic. Neither she nor her husband knew which prescription was more important and they didn't have enough money to buy them all. They didn't buy the anti-biotic. The doctor cleaned the wound and dressed it. After the doctor's visit in the morning, we sent anti-biotics and vitamins to assist in her recovery. Without that visit, she would have returned to the hospital with a serious infection and no one knows what the final outcome would have been. As it was, she recovered and was strong enough to breast feed her baby into a very healthy state.



Maria Mariela Dominguez on 9/20/07



Maria Mariela Domínguez and Jose Isaias Perez on 11/18/07

Of the patients that come to our clinic for healing, the greatest majority come from towns that have Government-run rural clinics. Obviously, we ask why they take the time and expense to come to Los Pajones when they have a clinic in their town. Many respond that the facilities in their towns don't have what they need; medicines, gauze, stitches, etc. Supplies are provided to the clinics but they come on an erratic schedule. The medicines are dispatched from the Provincial Headquarters and may or may not reflect the current needs of the clinic. Let me divert to an example. Pequeños Pasitos is on a dirt road, just off the main road, in the mountains 19 kilometers from Santiago. The new Batman movie, 'The Dark Knight' opened in theaters world-wide on July 18<sup>th</sup>. On August 2<sup>nd</sup>, I was buying a boot-legged copy, dubbed in Spanish, from a man with a backpack full of movies and music CD's. Not only was the distribution system an amazing display of logistical execution, but it offered me the ability to choose the movies that I wanted. Granted, stocking one clinic is relatively easy; two or three trips to Santiago each month to visit distributors, pharmacies and laboratories. But a lot can be learned from an operation that had its man walking dirt roads 15 days after the arrival of the newest product. A lot can be learned, if you want to learn it.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

There are other factors that will tend to keep the infant and maternal mortality rate in the Dominican Republic higher than in the United States.

The most important factor is to continue to seek solutions to each category of death. With the level of neo-natal deaths remaining constant, the 2007 report attributes these deaths to fundamentally congenital factors and the post-natal and post-infantile (between 1 and 5 years old) attributable to socio-economic conditions. The results that we have attained seem to be at odds with this assessment since our work has been to even the socio-economic discrepancy for the poor by providing free medical care by trained professionals, free vitamins to strengthen our women and free medicines for mom and baby. Our greatest impact has been in maintaining life during the first month and we have no control over congenital conditions. I think their analysis undermines this assumption. In the detailed analysis of infant mortality by education level, mothers with no education were experiencing 28 deaths per 1,000 live births; while mothers with a university education were experiencing 13. Education is an attribute of socio-economic status. But by attributing these deaths to congenital factors, SESPAS can stop looking for solutions to neo-natal deaths.

We have heard eyewitness reports of the conditions provided to women who have checked into the Public Hospital to deliver their babies. This is one of the most stressful and traumatic experiences for the human body. At this fragile time, the care provided includes assigning three or more women in labor to the same bed; hitting the women who cry out from the pain of contractions and threats to “take care of you last if you don’t shut up”.

An eyewitness report from a volunteer who was visiting the Public Hospital for the Community Health class she was taking at a Santiago University, is that she was sitting across from the nurse who was about to administer the BCG vaccine to a newborn. The nurse inserted the needle into the baby’s arm. When she pushed the plunger, the vaccine squirted all over the volunteer. The nurse had inserted the needle so far that it exited the arm.

The examples provided in this section point to at least two possible areas of improvement for healthcare in the Dominican Republic; a change from the current passive approach to active or aggressive healthcare for patients. The country has initiated a new structure that identifies a Primary Care Facility, referred to as a UNAP, for each person who is being provided healthcare by the Government. This structure could be used to facilitate active and aggressive healthcare by requiring responsibility of the UNAP for the health of its population. In practice, each UNAP would create a report like this identifying its standing against provincial, regional and country-wide norms. The second issue is increased training of healthcare professionals before they are assigned to care for human beings. The current structure of assigning recently graduated students, whom even the Government doesn’t recognize as physicians, is what Paul Farmer called “structural violence” in his book *Pathologies of Power*. Neither the urban nor rural poor deserve to be cared for by a doctor. They only get ‘doctor-wanna-be’s’ and they become guinea pigs, test cases and learning tools who end up as statistics in the next five-year report.

## Infant Mortality and Maternal Mortality in Benito Martinez, Dominican Republic

### Acknowledgements

We fear acknowledgements. We fear that we will leave someone off the list, especially when there are so many people involved in a successful program like this.

Special thanks go to our staff throughout the years, including Doctora Venecia Quiñones, Sylvia Rosmery Suriel, Doctora Corina Payamps, Sarai Cabrera, Waldo Leon, Maria Sanchez, Socorro Santana, Maria Antonia Fabian and Ramona (Ligia) Perez.

Special thanks also go to Timothy Empkie, M.D., MPH, Joseph Diaz, M.D., Mark Fagan, M.D., Edward Cheung and Juan Carlos Molina for their constant support.

Thanks to our many volunteers who have helped identify new and better ways to serve our community including, Dr. Vicente De Peña, Frank Peña, Wendy Beyer, M.D., Susan Andrews, RN, Dr Freddy Simonó, Brad (Carlos) Boehringer, RN, Dr. Ignacio Inoa, Madhavi Shah, M.D., Solmaz Behtash, D.O., Dr. José Virgílio Diaz, Jordan Shapiro, RN, Laura Bonacore, RN, Susan Cote, Dr. Jomy Abreu, Chris Carpenter, M.D., Jessica Buckley, M.D., Jessica Fairley, M.D., Jason Salter, D.O., Lily Gonzalez, Barbara Sequeri, RN, Kathryn (Katie) Klutts, Marissa Bucci, Candice Fletcher, Kristen Leigh Lewis, RN, Elvis Arthur, Dr. Estílio Arvelo, Anne Keith, RN, Carol Doane, RN, Thomas Drew, M.D., Sybil Cineas, M.D., Lisa Dickey, MPH, Noah Wasserman, Joanna Brown, M.D., Rory Olsen, Kai Morrison, Leah Morrison and Miguel Western.

Thanks to all of our volunteers throughout the years; students, Residents and Attending Physicians and local residents who kept the Clinic open and maintained. Thanks also to the Board of Directors of A Mother's Wish Foundation; James Barta, Rodrigo Gomez, M.D., Nicolas Jabbour, M.D., Anthony Marconi, Jessica Medina and David Pfeil.