

Ponte En Forma: An Assessment of the Health Needs of the Population of Santa Cruz,
Galapagos
Galapagos ICE
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Abstract

Ponte En Forma, a health campaign, was developed to assist ICE Galapagos and the population of Santa Cruz in The Galapagos to ascertain their priority needs in order to improve their quality of life. Ponte En Forma conducted its second needs assessment survey in 3 communities within Santa Cruz (Santa Rosa, Bellavista, and Puerto Ayora) with sections on water, nutrition/health, health care and health testing (blood pressure and blood glucose). The results of the water section of the study show that the majority of participants use agua dulce as their main source of drinking water. Forty-eight percent of respondents continue to experience water-related illnesses, which may be correlated to the 53% of participants who use tap water to brush their teeth. Results from the nutrition/health survey section reveal that while 47% of respondents desire to lose weight, only 34% of those respondents have made weight control efforts through diet and/or exercise. While many participants were previously aware of health problems from past health check-ups, for an alarming percent of participants Ponte En Forma was the first time they were alerted of potential health concerns. Twenty-seven percent of participants had either normal or low blood pressure and the majority, 71%, had blood pressure that was above healthy levels; also, 56% had blood glucose above normal. Many participants obtain off-island (mainland Ecuador) health services, some for emergency procedures, but the majority for health check-ups. The financial burden this puts on residents averages about \$1131 USD per year. A look at the stated community needs, better doctors and drinkable tap water, along with the above results are a starting point in understanding what can be done by Ponte En Forma in collaboration with the Santa Cruz community in order to improve quality of life.

Introduction

The Galapagos Islands, located 600 miles from mainland Ecuador (“Galapagos,” 2009), are renowned worldwide for their abundance of exotic wildlife. An internet search on the Galapagos provides countless sites endorsing its remarkable environment, along with hundreds of tourist companies that can take you there. Lacking, however, is information on the over 20,000 people (Nunez, 2007, p.66) who inhabit the four populated islands in the Galapagos (“Galapagos,” 2009). It is difficult to obtain accurate census statistics, let alone information on the health of the population of the Galapagos. This needs assessment was conducted in Santa Cruz, the island with a 2005 population of 12,771, the largest number of inhabitants of all the islands in the Galapagos (Nunez, 2007, p.66).

Humans only began inhabiting the Galapagos relatively recently. Although first discovered in the mid-1500’s by the Bishop of Panama who was on his way to Lima, Peru (Fitter, Fitter, & Hosking, 2000, p.206), it wasn’t until the early 1900’s when humans began to really establish themselves in the Galapagos (“Galapagos,” 2009). Ecuadorians continue to be drawn to Santa Cruz as tourism provides jobs and promises the “highest level of income per capita of any province in Ecuador” (Fitter, Fitter, Hosking, 2000, p.218). Even though the cost of living in this location is also several times higher than mainland standards (Honey, 1998, p.115), the 11% unemployment rate

in Ecuador (“Lonely,” 2009) draws many Ecuadorians in search of work from the mainland to the Galapagos. From the early 1960’s to the year 2000 the population increased by 900 percent in 40 years, from 2,000 to 18,000 inhabitants (Fitter, Fitter, & Hosking, 2000, p.217). As the population continues to swell, the needs for sustainable health care, health education, and the provision of basic health needs such as safe drinking water will also increase. There is a significant need for more information, both quantitative and qualitative, on the people of the Galapagos.

Purpose

To gain perspective about the needs of the community, in 2008 the Non-Government Organization, Galapagos ICE, developed Ponte En Forma, a project with the objective of helping the people of Santa Cruz to improve their quality of life. This health survey (see Appendix A), initiated in August, 2009, was the second round of Ponte En Forma’s assessment of the health needs of Santa Cruz. The survey, conducted in three Santa Cruz locations (Santa Rosa, Bellavista and Puerto Ayora), included questions about participants’ water sources, health history, weight perception, exercise and health care use. Also, participants’ blood pressure and blood glucose were taken in order to increase participant awareness of potential health issues and to help Ponte En Forma gain a sense of where health problems lie. Finally, survey participants were asked to state specific community health issues that are of particular concern to them.

This needs assessment has evolved since Round 1 (see Appendix G), whereas the first round focused primarily on nutrition, Round 2 looks at health in a more general sense. However, there are some corresponding areas of assessment between Round 1 and 2; specifically, both rounds tested participant blood glucose and blood pressure and obtained health history information. This report primarily covers the results of the Round 2 needs assessment, however Round 1 results are provided when appropriate for the purpose of comparison.

Due to the lack of information available on the people of Santa Cruz, a needs assessment survey is paramount in helping Ponte En Forma to ascertain the island’s fundamental health needs and the best courses of action for going forward. Also, for any project to be sustainable it is essential that the community be involved in its planning and implementation. Therefore, the assessment is not solely a means of obtaining community needs, but also the project’s first approach at engaging and empowering the community through education, awareness, and initiative-taking to improve their quality of life.

Methodology

The Ponte En Forma needs assessment survey was developed by Galapagos ICE (see Appendix A). The areas of Santa Rosa, Bellavista and Puerto Ayora were selected for the assessment survey and residents were informed of the project through flyers, radio and word or mouth. Volunteers, including an endocrinologist, nurse, fitness instructor and community representative, were obtained to participate in the initiation of the assessment. Assessment roles included asking survey questions, taking participant blood pressure and blood glucose, providing education and advice and writing prescriptions for participants with abnormal results who could benefit from medication. In contrast, personnel utilized for the Round 1 needs assessment included a nutritionist, local medical resident, cardiac nurse, personal trainer, and translator. The necessary equipment for the assessment were a sphygmomanometer for taking blood pressure, and a glucometer, strips, lancets, a lancing device, alcohol swabs and gauze for testing blood sugar .

When participants arrived they wrote down their names on a list and were called in one-by-one by a volunteer community representative who proceeded to ask questions and fill out the survey. ICE volunteers then took participants' blood pressure and blood glucose and wrote this down on a separate sheet of paper that was later transferred onto the individual survey forms. For participants with abnormal results, there was an endocrinologist present who educated them about their specific health concern, advised participants about what changes they could make in order to improve their health, and gave out prescriptions for those requiring medication. Since Round 1 focused primarily on nutrition, participant education included portion control and an explanation of the food pyramid. Also, participants in Round 1 were offered free aerobics classes for one month at a local gym. All participants were given a sheet of paper (see Appendix B) with all of their results (weight, blood pressure, and blood glucose) as well as a section for the physician to add health recommendations and/or medication instructions. Participants were encouraged to keep this sheet as a log to help them track their blood pressure, glucose, weight and exercise/nutrition achievements over time and were instructed to bring it back to the next Ponte En Forma for the purpose of comparison.

Data from the assessment was then analyzed individually as well as compared to the results from the 2008 Round 1 Ponte En Forma needs assessment. To organize information, blood pressure and blood glucose values from both Round 1 and 2 were put into categories. Participant blood pressure values were grouped into four categories as stipulated by the The Joint National Committee (JNC) on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (Limacher, 2003). The five categories of blood pressure included: low suspect (systolic of less than 90 mmHg or diastolic of less than 60 mmHg), normal suspect (systolic of 90-119 mmHg and diastolic of 60-79 mmHg), pre-hypertensive suspect (systolic of 120-139 mmHg or diastolic of 80-89 mmHg), stage 1 hypertension suspect (systolic of 140-159 mmHg or diastolic of 90-99mmHg), and stage 2 hypertension suspect (systolic of greater than or equal to 160 or diastolic of greater than or equal to 100). Participant blood glucose values were grouped into three categories as recommended by endocrinologist, Dr. S Weinrib (personal communication, August 29, 2009): normal suspect (fasting blood sugar (FBS) of less than or equal to 100 mg/dl, or post-prandial (PP, which means post-meal) blood sugar of less than or equal to 120 mg/dl), pre-diabetic or impaired glucose tolerance suspect (FBS of 101-125 mg/dl, or PP blood sugar of 121-199 mg/dl), and diabetes suspect (FBS of greater than or equal to 126 mg/dl, or PP blood sugar of greater than or equal to 200 mg/dl). Since a diagnosis for hypertension must be based on the "average of two or more properly measured, seated blood pressure readings of two or more office visits" ("U.S.," 2003, p.2) blood pressure categories are labeled as "suspect." Similarly, blood glucose categories are labeled "suspect" because two blood glucose values on two separate days are required for an accurate diabetes diagnosis (S. Weinrib, personal communication, August 29, 2009). Round 1 differed from Round 2 in that while blood pressure was taken for all participants, glucose levels were only tested for participants with a past history of diabetes or who specifically requested testing.

Results

General Participant Information

A total of 125 people from three towns within Santa Cruz (Santa Rosa, Bellavista and Puerto Ayora) participated in the Round 2 survey (see Appendix C). Of this total,

113 participants answered all or part of the questionnaire, while the remaining 12 people only participated in the blood pressure and blood glucose testing aspect of the survey (see Table 1, Appendix C). Twenty-three percent of the total participants were male, 70% were female, and the remaining 6% of participants did not provide an answer for this question (see Table 2, Appendix C). The majority of participants, 53%, were of ages 50+, while 32% were between 31-49 years of age, and 15% were 30 years or younger (see Table 3, Appendix C). In contrast, there were 230 participants in Round 1, 86% were female, and 14% were male. The average age of Round 1 participants was 37 for women and 41 for men (see Table 1, Appendix G).

Agua

The results of the water section of the study (see Appendix D) show that the majority of participants use “agua dulce” as their main source of drinking water. Agua dulce is treated drinking water most commonly purchased in jugs or bottles. Other drinking water sources were reservoirs, 7%, collections of rain water, 7%, more than 1 source of drinking water, 2%, and 10% of respondents did not provide an answer (see Table 1, Appendix D). Forty-eight percent of respondents reported that they had experienced a water-related health problem (see Table 2, Appendix D). Also, 53% of participants reportedly continue to use the tap water to brush their teeth (see Table 3, Appendix D).

Nutricion y Salud

Results from the nutrition and health survey section (see Appendix E) reveal that while 47% of respondents desire to lose weight (see Table 1, Appendix E), only 34% of those respondents have made weight control efforts through diet and/or exercise, while the other 66% of respondents have made no efforts (see Table 3, Appendix E). However, 46% of participants stated that they were happy with their current weight (see Table 1, Appendix E) and 60% of respondents regularly participate in some form of exercise and/or diet modification (see Table 2, Appendix E). Similarly, Round 1 results found that there was a keen interest in weight loss, where 44% of women and 19% of men stated that the motivation to lose weight was their primary reason for participating in the survey (see Table 2, Appendix G).

Many participants were previously aware of health problems from past health check-ups. In Round 2 11% of respondents had a previous diagnosis of diabetes, 15% a previous diagnosis of hypertension, and 15% had previously been diagnosed with both diabetes and hypertension (see Table 4, Appendix E). In terms of Round 1, 9% of women and 6% of men reported a history of high blood sugar, and 21% of women and 25% of men had previously had problems with high blood pressure (see Table 3 & 4, Appendix G). However, for an alarming percent of participants, Ponte En Forma test results were the first warnings of potential health problems. Sixty-one percent of Round 2 participants whose blood pressure tested above healthy levels and 54% whose blood glucose tested above normal values had not previously been aware of any potential health concerns (see Table 6, Appendix E). Also, 73% of Round 1 participants whose blood pressure tested above healthy levels and 71% whose blood glucose tested above normal ranges had not previously known of any potential health problems (see Table 7 & 8, Appendix G). Of the total participants in Round 2 56% had blood glucose levels that tested above normal ranges – indicating potential diabetes - and the remaining 44% had normal blood glucose results. In terms of blood pressure, 27% had either normal or low blood pressure, and the

majority, 71%, had blood pressure that was above healthy levels – indicating potential hypertension (see Table 5, Appendix E). Since only a select few had their blood glucose tested, the blood glucose results from Round 1 will not be used for comparison. However, 23% in Round 1 tested with normal blood pressure, while the remaining 69% had levels that indicated potential hypertension (Table 6, Appendix G).

Of participants who had previously received a diagnosis of diabetes, in Round 2 17% had blood glucose values within normal ranges, while 27% were in the pre-diabetic range, and 57% in the diabetic range (see Table 7, Appendix E). In Round 1 47% had a blood glucose within normal ranges, 16% in the pre-diabetic range, and 27% in the diabetic range (see Table 9 Appendix G). In terms of participants previously diagnosed with hypertension, in Round 2 9% had a blood pressure within normal ranges, 21% within pre-hypertensive ranges, 53% within stage 1 ranges, and 18% within stage 2 ranges (see Table 8, Appendix E). In Round 1 8% had a normal blood pressure, 59% were in the pre-hypertensive range, 25% in stage 1, and 2% in the stage 2 category (see Table 10, Appendix G). Furthermore, in Round 2 12% of participants had one or more family member(s) who had been diagnosed with diabetes, 16% with one or more family member(s) diagnosed with hypertension, and 19% with one or more family member(s) with both hypertension and diabetes. Therefore, a total of 47% of participants had one or more family member(s) with diabetes, hypertension, or both diagnoses (see Table 4, Appendix E).

Atencion Medica

Many residents obtain off-island (mainland Ecuador) health services (see Appendix F). Of these participants only 2% were primarily for emergency procedures, 46%, were for regular health check-ups, and the remaining 20% had traveled to the mainland for the purpose of both emergencies and medical check-ups (see Table 1, Appendix F). The financial burden this puts on the total 68% of residents who seek off-island medical care averages about \$1131 USD per year (see Table 2, Appendix F). It does not come as a shock, therefore, that when asked what areas of health in the Galapagos were most in need of improvement the majority of participants answered better medical staff and more specialists. Following in second place was drinkable tap water, and in third better hospital/emergency equipment (see Table 3, Appendix F).

Analysis

The results from the water section of the needs assessment survey indicate that 42% of participants have experienced water-related health illnesses and that 53% of participants continue to use tap water to brush their teeth. These statistics show that there is a need to address issues related to drinking water quality. This is an issue at the forefront of participants' minds as 72 of the 112 participants cited the improvement of drinking water as a priority health issue in their community. Whether addressing this issue comes in the more expensive form of investing in better technology to make tap water drinkable, or through educating residents about methods of obtaining safe drinking water and the cautions of using tap water to brush one's teeth, action needs to be taken on this issue. A 2005 study looked into the cost of upgrading water services on the island and when this endeavor was projected to cost \$26 million the project was put on hold (Collinson, 2009). As a result, it appears that health promotion and illness prevention are the most realistic and effective approaches at this point in time.

Survey results from the nutrition/health section of the survey show that there is a need for education in the general community on prevention of hypertension and diabetes, as well as the promotion of actions one can take if already diagnosed. Given that “most Galapaguenean families use on average three liters of cooking oil a week” (Collinson, 2009), basic nutrition education appears to be a good place to start. For many participants, the desire to control their weight exists, but for 66% of these people the motivation, knowledge, and/or support to make efforts towards a healthy living is lacking. Educating the community on the importance of having annual check-ups in order to bring awareness to potential health problems in the first place is also paramount. After all, how can participants be motivated to make lifestyle changes when 61% in Round 2 and 73% in Round 1 are unaware that they are potentially hypertensive and 54% in Round 2 and 71% in Round 1 are unaware that they may have diabetes. In an article by the JNC it states that it is not uncommon for a person to be unaware that they have hypertension, where on average only “70% of adults with hypertension are aware of their conditions” (Limacher, 2003). In North America the prevalence of the population with diabetes is 9.2%, which is considered the highest percentage in the world (“International,” 2009), compared to the 17% of Round 2 potential diabetics. Also, 28% of the North American population are affected by hypertension (measured as blood pressure above 140/90 mmHg) (Banegas et al., 2003, p.2363) compared to the 12% of Round 1 and 37% of Round 2 participants with blood pressure levels above this range.

Seventeen percent of participants who were previously diagnosed with diabetes have managed to stabilize blood glucose levels to within normal limits; however, 57% continue to have blood glucose levels at diabetic levels. The effects of uncontrolled blood glucose over time include stroke, nerve damage, kidney damage, high blood pressure, and vision problems (“Effects,” 2008). Only 9% of participants previously diagnosed with hypertension have managed to decrease their blood pressure to within normal limits while the majority, 53%, tested with a blood pressure in the stage 1 hypertension range. Some of the long-term effects of hypertension on the body include damage to the eyes, stroke, angina, heart attack, and bone loss (“High,” 2009). Blood glucose and blood pressure control are challenges experienced by people throughout the world and can be prevented through lifestyle modifications including a change in diet, increased exercise, and sometimes medication.

Quality of physicians and hospital equipment and access to specialist physicians on Santa Cruz were areas cited by participants as most in need of reform in terms of the health care system in the Galapagos. Given the financial burden that the apparent lack of quality and access of health care in Santa Cruz imposes on its residents it is not a surprising outcome. Sixty-eight percent of participants opt or are forced to seek general or emergency health care on the mainland and pay an annual average of \$1131 USD in expenses as a result. This is an exorbitant amount of money considering that in 2006 the average resident in Santa Cruz made an annual wage of approximately \$3107 US (Hardner, Steward, & Taylor, 2006, p.12).

Recommendations

The Needs Assessment Survey has provided Ponte En Forma with plenty of valuable information, but has also brought to light many important questions that remain unanswered. Firstly, in order to assist Ponte En Forma in ascertaining what plans of action would be most effective in assisting this community in improving their health,

more information is needed on what obstacles are encountered for the 66% of participants who would like to make weight changes but who haven't. For example, if the main obstacle was lack of motivation or support a corresponding course of action might be for Ponte En Forma to develop a weekly walking club.

Secondly, the 61% of participants who tested with high blood pressure and 54% of participants who tested with high blood glucose who were previously unaware of potential health problems raises the question of whether residents of Santa Cruz have annual health check-ups. More information on this area will help Ponte En Forma determine whether it is a lack of education on the importance of annual health check-ups, or whether it is a matter of community members' distrust of the quality of doctors and equipment in the local hospital. The majority of participants who seek off-island medical check-ups, along with the high number of participants who highlighted the need for improvement in the quality of on-island physicians certainly show that this is an area that needs further investigation.

Thirdly, for those 11% of respondents who are aware of a previous diagnosis of diabetes, 15% of a previous diagnosis of hypertension, and 15% previously diagnosed with both diabetes and hypertension, it is important to know what actions were recommended to them by medical professionals and whether participants are adhering to these recommendations. More examination of how the 17% of diabetic and 9% of hypertensive participants have managed to normalize their blood glucose and blood pressure is necessary. It would be useful to take a closer look at the differences in terms of lifestyle changes, supports, motivation and/or education that have been accessed by this group in contrast to the 57% of diabetic and 71% of hypertensive participants who continue to have dangerously high blood glucose and blood pressure values. Ponte En Forma needs to get a better understanding of the obstacles that exist for this community towards improving their health. For example, the lack of availability and the high price of glucometers may represent a major obstacle for people who have diabetes and who want to monitor and control their blood sugar. The above questions need to be answered in follow-up research before Ponte En Forma can initiate programs that address the needs of the community in a manner that is community driven and sustainable.

Limitations

Important limitations encountered when interpreting this needs assessment included a potential participant population bias, a small sample size, difficulty in interpreting blood glucose values, challenges comparing Round 1 and Round 2 statistics, and participant confusion around what constitutes exercise. In terms of survey population biases, more community members who had previous health concerns or who suspected that they might have health problems may have been more attracted to partaking in a health survey than community members who are generally healthier. Also, with a survey population size of 229 in Round 1 and 125 in Round 2 within a total community population size of over 12,000 (Nunez, 2007, p.66) the surveyed population represents only between 1-2% of the total Santa Cruz population.

Interpreting blood glucose values for the purpose of categorizing participants as normal, pre-diabetic, or diabetic was challenging since blood glucose values are interpreted differently depending on whether a person has been fasting (blood sugar level in the morning before the person has eaten anything) or if a person has eaten recently. While some testers did specify the time that the participant last ate, this was inconsistent

between testers and for many participants there is no specification. Therefore, the bulk of the blood glucose values had to be interpreted under the assumption that the participant had eaten within two hours previous to their blood sugar test. The limitation in comparing blood glucose results from Round 1 to Round 2 was that in Round 1 blood glucose testing was only done when participants stated either that they had a history of diabetes, or that they were interested in knowing their blood glucose levels. As a result, it was not possible to directly compare blood glucose values from Round 1 to Round 2. Future assessment results that are grouped in the same categories will prove to be more valuable in terms of comparing and contrasting data between surveys.

Finally, when answering the survey question asking whether participants had exercised in the last 30 days, there was some confusion among participants around whether the transportation methods of walking and cycling (low impact activities) constituted exercise. Many people assume that exercise always consists of organized and high impact activities such as sports and going to the gym. Due to the subjective interpretation of exercise, the statistics related to this question may not be entirely reliable. The consideration of the above limitations and the incorporation of these suggestions into future assessments will improve the statistical reliability of Ponte En Forma research and, in turn, the effectiveness and sustainability of actions initiated by Ponte En Forma.

Appendix A: Needs Assessment Survey

IDENTIFICACION

Edad: _____ Sexo: M F Estado civil: Soltero Casado

Parroquia/Barrio: _____ Presion: _____ Azucar: _____ Peso: _____ Altura: _____

AGUA

1. ¿Cuál es la fuente principal de agua potable para los miembros del hogar?
Reservarios Agua Dulce Colección de Agua Otro
2. ¿Se cepilla los dientes con agua del grifo? Si No A veces
3. ¿Ha tenido problemas de salud por problemas del agua de lo que sepa? Si No
Explica: _____

NUTRICION Y SALUD

1. ¿Qué quieres hacer sobre tu peso? Perder peso Ganar peso Mantener
2. ¿Has hecho ejercicio en los ultimo 30 dias? Si No
3. ¿Has dejado de comer para bajar de peso? Si No
4. ¿Tienes diabetes? Si No ¿Alguien en su familia ha tenido diabetes? Si No
5. ¿Tienes hipertensión? Si No ¿Alguien en su familia tiene hipertensión? Si No

ATENCION MEDICA

1. ¿Ha salido para el continente para atención medica para chequeos? Si No
2. ¿Ha salido por emergencia para atención medica? Si No
3. ¿Típicamente cuanto gasta para salir para atención medica? _____
(vuelos, hoteles, comida, hospital, pruebas etc)
4. ¿Puede nombrar 2 cosas en su opinión que se puede hacer para mejorar el sistema de salud en Galápagos? _____

Appendix B: Participant Log Sheet

Table 1: Side A

FECHA	PESO	PRESION	AZUCAR
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16			

Table 2: Side B

SUGERENCIAS

Appendix C: General Participant Information

Table: Number of Participants

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Questionnaire Not Answered	0	4	3	5	12	10%
Questionnaire Answered (completely or partially)	11	17	38	47	113	90%
Total	11	21	41	52	125	100%

Table 2: Sex of Participants

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Male	5	6	10	8	29	23%
Female	5	13	30	40	88	70%
Unknown	1	2	1	4	8	6%
Total	11	21	41	52	125	100%

Table 3: Age Category of Participants

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
0-30	2	5	6	6	19	15%
31-49	3	8	21	8	40	32%
50+	6	8	14	38	66	53%
Total	11	21	41	52	125	100%

Appendix D: Agua

Table 1: Method of Drinking Water Collection in the Home

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Reservorios	0	4	4	1	9	7%
Agua Dulce	9	6	32	45	92	74%
Coleccion de Agua	2	4	2	1	9	7%
Otro	0	0	0	0	0	0%
More than 1 Source	0	3	0	0	3	2%
Unanswered	0	4	3	5	12	10%
Total	11	21	41	52	125	100%

Table 2: Self-Reported Incidentes of Water-Related Illnesses

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Reservorios	0	0	3	1	4	7%
Agua Dulce	3	1	17	24	45	83%
Coleccion de Agua	0	3	1	0	4	7%
Otro	0	0	0	0	0	0%
More than 1 Source	0	1	0	0	1	2%
Total	3	5	21	25	54	100%
Percent (of completed forms)	27%	29%	55%	53%	48%	

Table 3: Use of Tap Water to Brush Teeth

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Yes	10	9	23	24	66	53%
No		8	13	20	41	33%
Sometimes	1	0	2	2	5	4%
Unanswered	0	4	3	6	13	10%
Total	11	21	41	52	125	100%

Appendix E: Nutricion y Salud

Table 1: Participant Weight Objectives

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Perder Peso	5	9	16	23	53	47%
Ganar Peso	1	2	1	4	8	7%
Mantener	5	6	21	19	51	46%
Total Answered	11	17	38	46	112	100%

Table 2: Participant Weight Control Efforts

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Ejercicio en los Ultimos 30 Dias	2	0	7	30	39	35%
Dejado de comer	1	2	7	8	18	16%
Los Dos	1	0	4	5	10	9%
Nada	7	14	20	3	44	40%
Total Answered	11	16	38	46	111	100%

Table 3: Participants Wanting to Lose Weight Who Have Made Efforts

	Toal	Percent
Si	18	34%
No	35	66%
Total	53	100%

Table 4: Participants' Report of Self and Family Health History

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Healthy	9	11	25	23	68	59%
Diabetic	0	2	6	5	13	11%
Hypertension	2	5	2	8	17	15%
Both	0	1	5	11	17	15%
Total Answered	11	19	38	47	115	100%
Family Healthy	8	11	17	24	60	53%
Family Member(s) with Diabetes	0	0	8	6	14	12%
Family Member(s) with Hypertension	3	3	5	7	18	16%
Family Member(s) with both	0	3	8	10	21	19%
Total	11	17	38	47	113	100%

Table 5: Actual Participant Health Statistics as Taken by Ponte Informe

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Normal Suspect	6	6	21	22	55	44%
Pre-diabetic Suspect	3	14	14	18	49	39%
Diabetic Suspect	2	1	6	12	21	17%
No Info	0	0	0	0	0	0%
Total	11	21	41	52	125	100%
Low Suspect	0	0	2	0	2	2%
Normal Suspect	1	5	11	14	31	25%
Pre-Hypertensive Suspect	4	8	17	14	43	34%
Stage 1 Hypertension Suspect	4	6	7	17	34	27%
Stage 2 Hypertension Suspect	2	2	3	5	12	10%
No Info	0	0	1	2	3	2%
Total	11	21	41	52	125	100%

Table 6: Participants with Abnormal Results with Previous Knowledge

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Previously Aware of Diabetes	0	2	10	14	26	37%
First Time Knowledge of Abnormal Glucose Levels	5	11	8	14	38	54%
No Info on Previous Knowledge	0	2	2	2	6	9%
Total	5	15	20	30	70	100%
Previously Aware of Hypertension	2	6	6	16	30	34%
First Time Knowledge of Abnormal Blood Pressure Values	8	9	19	18	54	61%
No Info on Previous Knowledge	0	1	2	2	5	6%
Total	10	16	27	36	89	100%

Table 7: Blood Glucose Values of Participants with Known Diabetes

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Normal Range	0	1	2	2	5	17%
Pre-diabetic Range	0	1	3	4	8	27%
Diabetic (uncontrolled) Range	0	1	6	10	17	57%
Total	0	3	11	16	30	100%

Table 8: Blood Pressure Values of Participants with Known Hypertension

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Low Suspect	0	0	0	0	0	0%
Normal Suspect	0	0	1	2	3	9%
Pre-Hypertensive Suspect	0	2	0	5	7	21%
Stage 1 Hypertension Suspect	1	3	4	10	18	53%
Stage 2 Hypertension Suspect	1	1	2	2	6	18%
Total	2	6	7	19	34	100%

Appendix F: Atencion Medica

Table 1: Participants Receiving Medical Attention Off-Island

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Percent
Ha salido para atención medica para chequeos	5	6	12	28	51	46%
Ha salido por emergencia medica	0	1	1	0	2	2%
Both	2	3	9	8	22	20%
No	4	7	16	8	35	32%
Total	11	17	38	44	110	100%

Table 2: Average Cost in \$US to Receive Off-Island Medical Attention

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total	Average Spent Overall
Average Annual Expenses (US\$)	786	1560	1081	1097	4524	1131

Table 3: Participant Stated Priority Health Needs

	Santa Rosa	Bellavista	Puerto Ayora	Puerto Ayora 2	Total
Medical Specialists/Better and Permanent Doctors	10	13	31	45	99
Better Hospital/Emergency Equipment	1	1	1	13	16
Drinkable Water	1	4	26	41	72
Put a Pharmacy in Bellavista	0	4	0	0	4
Eat More/Have More Available Vegetables/Better Nutrition	0	2	0	3	5
Mas Control en la Playa (first aid, swimming lessons)	0	0	1	0	1
Less Car Pollution	0	0	0	1	1

Appendix G

Table 1: General Health Information

	Women	Men
Total Number of Participants	198	32
Average Age	37	41
Average Weight (lbs)	143 lbs	168 lbs
Average Height (feet)	5 feet 1 inch	5 feet 5 inches
Overweight	63.0%	43.8%
Underweight	1.5%	0.0%

Table 2: Reasons for Coming

	Women	Men
Lose Weight	44.2%	18.8%
Learn About Nutrition	22.8%	25.0%
Undergo General Check-Up	9.6%	34.4%
Other (muscle def., risks, etc.)	7.1%	0%
Control Blood Sugar/Diabetes	6.1%	9.4%
Lower Blood Pressure	3.0%	6.3%
Alleviate Heart Problems	2.5%	0%
Gain Weight	2.0%	0%
Lower Cholesterol	1.5%	0%
Manage Blood Diseases	1.0%	0%
Manage Back Problems	0%	6.3%

Table 3: Self-Reported Health History of Men

	# of Men	Percent of Men
high blood pressure	8	25.0%
high cholestorol	6	18.8%
high blood sugar	2	6.3%

Table 4: Self-Reported Health History of Women

	# of Women	Percent of Women
high blood pressure	43	21.3%
high cholesterol	43	21.4%
high blood sugar	17	8.6%
low blood pressure	5	2.5%
low blood sugar	2	1.0%

Table 5: Actual Participant Blood Glucose Statistics

	Males	Females	Total	Percent
Normal Suspect	11	58	69	30%
Pre-diabetic Suspect	2	19	21	9%
Diabetic Suspect	2	5	7	3%
Not Tested	17	116	133	58%
Total	32	198	230	100%

Table 6: Actual Participant Blood Pressure Statistics

	Males	Females	Total	Percent
Low Suspect	0	0	0	0%
Normal Suspect	1	53	54	23%
Pre-hypertension Suspect	19	113	132	57%
Stage 1 Hypertension Suspect	8	20	28	12%
Stage 2 Hypertension Suspect	0	1	1	0%
No Information	4	11	15	7%
Total	32	198	230	100%

Table 7: Participants' Prior Knowledge Regarding Abnormal Blood Glucose

	Males	Females	Total	Percent
Previously Aware	1	7	8	29%
First-Time Knowledge	3	17	20	71%
No Info on Previous Knowledge	0	0	0	0%
Total	4	24	28	100%

Table 8: Participants' Prior Knowledge Regarding Abnormal Blood Pressure

	Males	Females	Total	Percent
Previously Aware	7	37	44	27%
First-Time Knowledge	20	97	117	73%
No Info on Previous Knowledge	0	0	0	0%
Total	27	134	161	100%

Table 9: Blood Glucose Values of Participants with Known Diabetes

	Males	Females	Total	Percent
Normal Suspect	0	9	9	47%
Pre-diabetic Suspect	0	3	3	16%
Diabetic Suspect	1	4	5	26%
Not Tested	1	1	2	11%

Total	2	17	19	100%
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Table 10: Blood Pressure Values of Participants with Known Hypertension

	Males	Females	Total	Percent
Low Suspect	0	0	0	0%
Normal Suspect	1	3	4	8%
Pre-hypertension Suspect	4	26	30	59%
Stage 1 Hypertension Suspect	3	10	13	25%
Stage 2 Hypertension Suspect	0	1	1	2%
Not Tested	0	3	3	6%
Total	8	43	51	100%

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