

An analysis of the greatest areas of medical need in Churcampa, Huancavelica

Churcampa Medical and Humanitarian Mission Report

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Medical Purpose

The purpose of the medical aspect of the 2022 Churcampa Mission was to hold a two-day Health Fair focusing on preventive medicine where patients were screened for anemia, diabetes, hypertension, high cholesterol, and obesity, as well as to identify how many had done preventive testing such as colonoscopies, mammograms, pap smears, bone densities, prostate exams, use of alcohol or tobacco, and mental health. Patients were given recommendations for healthier living based on their findings. The data from the fair was compiled and analyzed in order to better inform future medical missions on the specific needs and challenges of the citizens of Churcampa and the surrounding villages. Additionally, there were several patients who were seen during the health fair that expressed the need for a longer consultation with one of the visiting physicians about specific medical concerns. These patients were seen after the fair's close of day in the Centro de Salud.

In addition, the Churcampa Medical Mission donated medical supplies and equipment (Figure 2) to the Centro de Salud, several of which were utilized during the health fair.

Medical Methods

The health fair was held in the Plaza de Armas in collaboration with the Red de Salud and the Centro de Salud. The fair was advertised through flyers made by the directors of the mission which were printed and distributed by the volunteer firefighter division of Churcampa and broadcast via the local radio station.

The health fair collected deidentified data (Figure 1) including: age, sex, temperature, blood pressure, weight, height, glucose, hemoglobin, total cholesterol, triglycerides, and BMI. Additionally, a targeted medical history was taken, including whether the patient had undergone a colonoscopy, pap smear, mammogram, bone density scan, prostate exam, and a mental health evaluation. Additionally, the medical history included questions about whether the patient drinks alcohol, smokes cigarettes, and the number of COVID-19 vaccines the patient had received thus far. It is to note that hemoglobin values had to be corrected for the altitude.

Not all patients received all tests based on age and availability of the exams. The hemoglobin, cholesterol, and triglycerides were collected by the laboratory of the Centro de Salud on August 12th and for 30 patients on August 14th. After that, the hemoglobin and cholesterol were collected by the mission volunteers using measuring systems Curo and Midasia.

The Red de Salud used the health fair to give COVID-19 vaccines and provide mental health screenings and sexually transmitted disease testing. While these were done concurrently with the mission's medical data collection, the Red de Salud's operations were outside of the scope of the Churcampa Medical Mission and the resulting data was not collected.

Medical Results

The preventive medical health fair saw 177 patients in total. The youngest participant was 1 year old and the oldest participant was 91 years old. Since the medical data was collected during the physician's evaluation, there are 140 patients included in the data set due to 37 patients leaving before their evaluation. In our data set, there are 83 females and 57 males, 20 of which are children.

In testing hemoglobin in adults, healthy normal values (1-2) were set to be 13.6-16.9 in males and 11.9-14.8 in females. For adult females (n=76), 18 demonstrated low hemoglobin values, ranging from 7.2 to 11.8, with 6 females demonstrating borderline values of 11.9 to 12.1. For adult males (n=44), 9 males demonstrated low hemoglobin values, ranging from 10.7 to 13.4, with 4 males demonstrating borderline values of 13.6 to 13.9.

In testing hemoglobin in children, healthy normal values (3-7) were set to be 11-13.5 in children 6 months to 2 years of age, 11-13.7 in children 2 to 6 years of age, and 11.2-14.5 in children 6 to 12 years of age. For children under 2 years of age (n=5), two were tested for hemoglobin and the results were 12.7 and 9.4 respectively. For children between 2 and 6 years of age (n=5), four children were tested for hemoglobin and the results were 6.7, 9.6, 11.5 and 11.6. For children 6 to 17 years of age (n=10, HGB 9.8-15.3), all children were tested for hemoglobin values and 6 children demonstrated low values for their age and sex.

Total cholesterol findings were considered to be high above 200 mg/dL and triglycerides findings were considered to be high above 150 mg/dL for adult females and males (8). Of the 115 individuals with total cholesterol tests, 59 individuals were found to have high cholesterol (results ranging from 200 mg/dL to 337 mg/dL). Of the 93 individuals who were tested for triglycerides, 50 individuals were found to have high triglyceride levels (results ranging from 150.38 mg/dL to 637.56 mg/dL).

The body mass index was taken for each patient (n=138) based on age, sex, height, and weight. 54 individuals demonstrated BMI values between 25.1-29.8, qualifying as overweight. 29 individuals demonstrated BMI values between 30-39.1, qualifying as obese.

Of individuals who were tested for glucose and were fasting (n=35), 9 individuals qualified for prediabetes (with glucose findings of 101-115) and 4 individuals were found to likely have diabetes (with findings 132, 174, 247, 410 respectively). Of the individuals who were non-fasting who tested for glucose (n=88), 5 individuals qualified for impaired glucose tolerance or prediabetes (with glucose findings of 143-169) and 2 individuals who were likely have diabetes (279 and 600 respectively).

Almost all individuals were tested for high blood pressure (n=139). 19 individuals were found to have high blood pressure with systolic values ranging from 137-166 and diastolic values ranging from 68-109.

The preventive medicine findings were as follows: In women older than 21 years of age (n=76), 28 have never had a pap smear. In women older than 40 years of age (n=46), 34 have never had a mammogram. Of adults older than 50 years of age (n=67, 39 female, 28 male), only 3 (2 female, 1 male) had previously undergone a colonoscopy. Of the adults older than 65 years of age (n=37; 19 female, 18 male), only 3 (all female) had undergone a bone density scan. Of males older than 50 years of age (n=30), only 12 individuals had previously had a prostate exam.

Among all individuals, 12 total individuals disclosed having previously undergone a mental health screening. 25 individuals admitted they drank, but most responded NO to drinking alcohol but later admitted to drinking socially. 2 individuals admitted to smoking cigarettes.

COVID-19 vaccines were included as a medical history item on the exam. 8 individuals had not been vaccinated; 7 of these individuals were children below the age of 4 and the remaining individual was a 71 year old female. 1 individual had a single vaccine; a 5 year old female. 13 individuals had 2 vaccines, 64 individuals had 3 vaccines, and 53 individuals had 4 vaccines.

Medical Discussion

There is a high incidence of anemia risk in Peruvian communities, especially in children (9). Our findings showed 32% of our female patients and 30% of our male patients demonstrated low hemoglobin values consistent with anemia or anemia-risk. Our findings in children are significantly more concerning; about 50% of the children tested at the health fair demonstrated anemia, across age groups. This finding is complicated by a small population size and different norms per age group, but suggests that anemia in children is a major concern in Churcampa, Huancavelica and future missions should consider this an area of particular need. Further education about iron-rich foods and how to combat anemia should be taught to parents and children alike.

Cardiovascular disease is a particular health concern for the people of Churcampa. As total cholesterol findings are minimally affected by fasting status, whereas triglyceride findings are significantly affected, only the total cholesterol findings were used in the data analysis. 51% of patients tested for total cholesterol qualified for high cholesterol. Additionally, of the 19 individuals who were found hypertensive, none were aware of their high blood pressure status and none were taking medication to address this value.

Type 2 diabetes is a major concern in Peru, with medical literature citing diabetes accounts for 31.5% of acute myocardial infarctions and 25% of strokes (10). During the health fair, we found a high percentage of individuals who qualified for prediabetes or impaired glucose tolerance. We identified six individuals who demonstrated glucose values consistent with diabetes. In discussing treatment plans with these patients, it became apparent that diabetes is being undertreated at the Centro de Salud and Es Salud. In the case of a patient from Es Salud

with a 600 mg/dL non-fasting glucose finding, his diabetes was being treated with metformin and januvia alone, even though his blood work demonstrated a clear need for insulin. During the health fair, we didn't encounter any patients who were taking insulin, despite encountering several who were aware that they had diabetes. Lack of insulin or adequate treatment of diabetes should be an area of concern for underserved and under resourced areas of Peru.

Obesity, physical inactivity, poor diet, and depression are all factors which can increase an individual's risk for developing cardiovascular disease and diabetes. The lack of habitual recreational exercise for adults and poor diet high in fried foods and potatoes likely contribute to 60% of individuals tested qualifying as overweight or obese. Additionally, there is a high incidence of alcohol consumption and of binge drinking, despite the disclosed findings of the health fair questionnaire. Lastly, only 12 individuals total had previously received a mental health screening. While more investigation needs to be done into the incidence of depression or self-harm in the population, availability or accessibility of mental health resources may be an area of need. Cardiovascular disease and diabetes risk need to be approached from an educational standpoint, recognizing that the habitual Churcampino lifestyle opens citizens to particular health risks that can be combated by healthier eating, more exercise, less alcohol consumption, and lowered consumption of red meat and fried foods.

The most striking finding from the health fair was the significant lack of preventive screening exams undergone by the citizens of Churcampa, particularly the elder citizens. 36% of women older than 21 years of age had never had a pap smear. 74% of women older than 40 years of age had never had a mammogram. 95% of adults older than 50 years of age had never had a colonoscopy. 92% of adults older than 65 years of age had never had a bone density scan. 60% of males older than 50 years of age had never had a prostate exam. In areas of under-resourced medicine, preventive screening exams should be utilized in greater excess in order to prevent later stage conditions that are more challenging and costly to treat. Churcampa Mission hopes to bring these screening exams, particularly mammograms and colonoscopies, in future iterations of the medical mission in order to combat the high incidence of breast cancer in the region (the incidence of colon cancer is not yet known). Through this effort, we hope to give Churcampinos greater medical agency in greater medical knowledge.

Nutrition Fair

The medical directors organized a Nutrition Fair at the high school Señor de Atocasa in hopes of expanding medical education and introducing healthier lifestyle choices to adolescents in Churcampa. The students of first and second year created presentations which identified the nutritional value of local products, especially those high in iron, whose consumption may help to minimize the high index of anemia in the region. These products included potatoes, mashua, morcilla, quinoa, tarwi, kiwicha, among others. The students of third, fourth, and fifth year presented on health conditions that are of particular risk in the region – such as anemia, diabetes,

alcoholism, and obesity – as well as methods to combat the high incidence of anemia in Churcampa.

The program was presented to UGEL and it was approved for the scholastic year. Students of 1st and 2nd year competed amongst each other; students of 3rd, 4th, and 5th year competed amongst each other. The winning teams were scored based on a specific criteria of 20/20 points. The jurors were members of Southern California PAMS and volunteers of the mission. The winning teams were awarded with diplomas and backpacks with school supplies. All participants were also given school supplies as a gift for their participation.

Topics of the Winners of the First and Second year students:

First place - Baccharis Latifolia

Second Place - Coca and Tara

Third Place - Papa and Mashua

Topics of the Winners of the Third, Fourth, and Fifth year students:

First Place - Llullucha

Second Place - Alcoholism

Third Place - Anemia and Morcilla

In addition to the nutrition fair, the mission donated a violin, a trombone, and cymbals to the school band, in response to a previous request from the teachers that there was a desire for greater access to musical instruments and education (Figure 3). We also donated mats so the only available open space, which is cement, can be a safer place to utilize for physical education.

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Images of Medical Aspect.



Images of Educational Aspect.

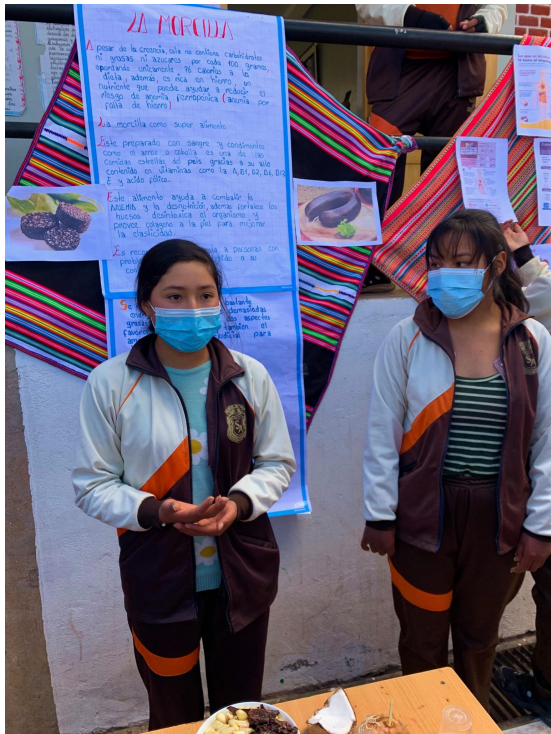
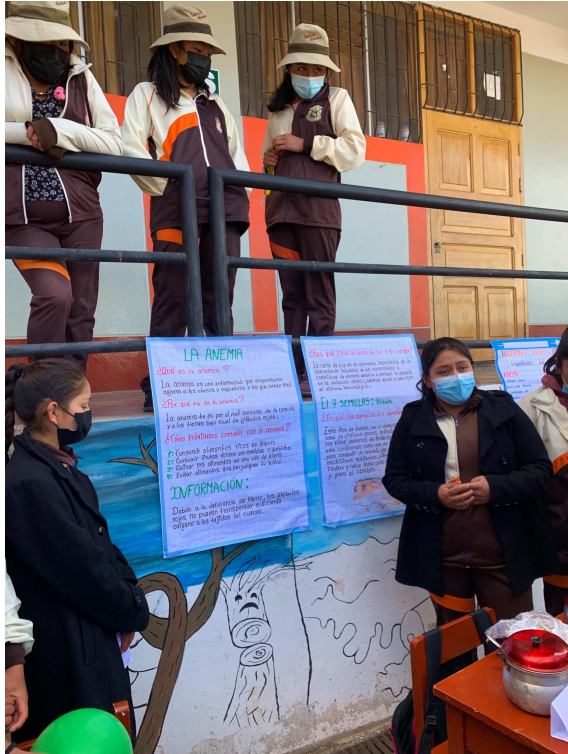


Figure 1. Data Collection Sheet used during the 2022 Health Fair



		No _____	
		Edad _____	
		Sexo _____	
Feria de Salud Churcampa Medical Mission Southern California Peruvian American Medical Society Agosto 2022			
T _____	PA _____	PESO _____	TALLA _____
GLU _____	HGB _____	TC _____	BMI _____
Historia Médica			
Si <input type="checkbox"/>	No <input type="checkbox"/>	Colonoscopia	
Si <input type="checkbox"/>	No <input type="checkbox"/>	Papanicolao	
Si <input type="checkbox"/>	No <input type="checkbox"/>	Mamograma	
Si <input type="checkbox"/>	No <input type="checkbox"/>	Densimetria	
Si <input type="checkbox"/>	No <input type="checkbox"/>	Examen de Prostata	
Si <input type="checkbox"/>	No <input type="checkbox"/>	Bebe Alcohol	
Si <input type="checkbox"/>	No <input type="checkbox"/>	Fuma Cigarrillos	
Si <input type="checkbox"/>	No <input type="checkbox"/>	Salud Mental	
	Cuántas <input type="checkbox"/>	Vacunas de COVID-19	
<hr/>			
Recomendaciones:			
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Feria de Salud auspiciada por Centro de Salud de Churcampa y SoCal PAMS			

Figure 3. Signed receipt of donations to Señor de Atoccasa

ACTA DE DONACION

En la Institución Educativa nivel secundaria "Señor de Atoccasa", siendo el día Jueves 11 de agosto de 2022, a horas 9:20 a.m., la Directora de esta casa de estudios, Lic. Rosa Lidia Velásquez Llanco, en representación de toda la comunidad educativa, recibió de parte de la Dra. Heidi Escurra, quien a nombre de la ONG. Southem California PAMS, las siguientes donaciones:

- 1.-Un violín
- 2.-Un juego de platillos
- 3.-Un trombón
- 4.-6 colchonetas para educación física

Igualmente, según el plan de lucha contra la anemia, se desarrollo la feria de exposición de trabajos de parte de los estudiantes de esta casa de estudios, y los ganadores recibieron premios para que prosigan incentivándose a la investigación.

-Se recibió premios diversos de parte de la Dra. Heidi Escurra, quien a nombre de la ONG. Southem California PAMS hizo entrega de diversos premios a todos los estudiantes ganadores, de lo cual estamos muy agradecidos.

Sin mas que tratar se cierra la presente acta, firmando al final en señal de conformidad siendo el mismo día a horas 2:30 p.m.

 
Lic. Rosa Lidia Velásquez Llanco
DIRECTORA

