Know Your Numbers: The evolution of an idea into a feasible project and future tool for United Neighborhood Health Services of Nashville.

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The Origin of a Project: Recognizing the Challenges of the Concept

When I applied for the National Medical Foundation's GE-PCLP Scholarship I had a project in mind that I hope to someday institute into the rural areas of South Dakota. My hope is to someday do comprehensive healthcare screenings in rural areas that would look at cholesterol, blood glucose, blood pressure, body fat percentage and lifestyle habits to help people better understand where their health stands and how the decisions they make on a daily basis could impact their health, both positively and negatively. In my mind these screenings could take place at a community health fair. I could join forces with allied health professionals to provide educational sessions to participants based on their interest areas. This would include simple exercises to do at home, strategies to reduce smoking or drinking, discussion of barriers within the community that people feel are preventing them from living healthier, cooking sessions on how to prepare healthier food, and so on.

I knew going into this project that my vision for a rural interdisciplinary travelling health screening system with an educational component would not be feasible in Nashville. First of all, I am not an interdisciplinary health team, I am only one person. I realized for me to complete a screening that involved taking skin caliper measurements and blood samples, coupled with education would be too much for one person to handle. Having some experience in diabetes education in populations with limited access to healthcare, I also know that capturing the moment can be very important when you are doing screenings. Instead of trying to get people to return for an educational session or keep them hanging around to participate in a group activity, you often need to seize the moment you have with them and make a decision on what is going to be the most important thing for you to cover while you have them in this moment.

Another challenge I knew I would face was being able to strike a balance between seeing as many patients as possible while still being able to spend time counseling them about their health concerns. This is a reality in many clinical settings, but especially when trying to provide some form of health counseling at screening events. Previous experience in interventional research has taught me that providing information in an easy to access manner is important. Something as simple as a brightly colored folder can help serve as a reminder of someone to think about their personal health. By providing individualized educational materials in an easy to understand format and placing it all in a folder, I hope that patients can take it home and review it. Even if they set it aside at first, when they see the folder it will serve as a reminder of the screening and hopefully prompt them to review the materials. I also wanted to take into consideration the different reading levels of patients. Often times medical jargon can be a barrier to patients trying to understand and change their health behaviors. I thought it was important to provide easy to read visualizations of normal and abnormal numbers on all of the educational handouts I developed so I could chart the current readings for the patients directly on the educational materials. They could then see where they fall on the continuum of normal to unhealthy numbers and utilize it as a guide in the future for which direction their numbers were trending. I had

originally thought to develop some of these materials prior to my arrival in Nashville, but I wanted to see what materials United Neighborhood Health Services(UNHS) had in place to ensure continuity. I also wanted to ensure that I was addressing the needs of the community with my information by developing handouts that targeting the specific health concerns individuals faced. To do this I would have to wait until I arrived in Nashville and was able to learn more about the communities served by UNHS.

Making the Adjustment: Meeting the Community's Needs

After arriving in Nashville and getting the chance to learn more about United Neighborhood Health Services I began making adjustments to my original project plan. Seeing patients in the clinic made it apparent that many of the issues I was hoping to address do impact the members of these communities. Smoking, blood pressure, diabetes, asthma, sexually transmitted disease, and obesity were areas I was able to identify while working in the clinic. I also noticed the complexities of helping patients keep up with their preventative health screenings. An example is ensuring female patients undergo screening for cervical cancer per the recommendations of the U.S. Preventative Services Task Force (USPSTF). According to the USPSTF, women from age 21-65 should undergo screening for cervical cancer with cytology (Pap Smears) every 3 years. For patients >30 years of age they can undergo cytology combined with HPV testing every 5 years[1]. At UNHS, they have more stringent recommendations in that they recommend patients undergo screenings every 2 years. Through speaking with the CMO and the Quality Assurance I learned that UNHS does struggle to meet this HEDIS measure. Areas they have identified as a weakness include providers not making the appropriate recommendations, providers not documenting the screenings appropriately, patients not recognizing when and why they are in need of the screenings, and difficulty obtaining information when the screening has been completed at another facility. Although this is not a screening I could directly address in my project, I thought I could improve patient understanding of when and why the screenings are recommended by possibly developing a guide for preventative health care in adults. I could give this to each of the patients at the screening so they could see what screenings they needed now and in the future.

Another area I discussed with the CMO was having the discussions with patients about what their BMI and what implications this has on someone's health. When reviewing the peer chart audits I noticed that the providers were struggling with both recognizing high BMI in a patient as well as addressing it. The CMO confirmed that this is an area that has been difficult to address with providers. The EHR automatically calculates the BMI for each patient, so it is a matter of the providers making note of it and having the time to discuss it with the patients. I know this can be a difficult subject area to breach with patients. I decided to put together a BMI booklet that could be used at the screenings but also in the clinical setting to help start the conversation.

Another area I discovered was an area of concern specifically to UNHS was maintaining hypertension within an acceptable range. They feel like they do a good job of identifying hypertension but seem to struggle with control. They feel that the pharmacotherapy regimens that are given in an attempt to control the disorder do seem to be in line with the recommendations from the Joint National Committee, but the numbers do not seem to match up. This reinforced the need for screening and education with my project.

Because I came to Nashville with the equipment to test cholesterol at the screening events I knew this was something I would like to do. Discussions with those at UNHS revealed that although there was likely some

underscreening in this area, it was not something that fell into their primary concerns at this time because of their high proportion of obesity, diabetes and uncontrolled hypertension. Because hyperlipidemia can often accompany these other conditions I felt it would still be important to address this with my screenings.

As always, making personal health a priority for patients is a struggle at UNHS like in many areas of the country. Again, speaking with those working at UNHS, it was felt that time and information were two things they felt patients needed more of. It is difficult to take the time to talk about BMI or blood pressure when someone comes in for a sore throat, but mentioning it can at least be a starting point for the conversation and open the door for the patient to begin recognizing its importance. One physician at UNHS told me that they felt the more information they could send home with their patients, the better they felt their patients could understand the importance of these health concerns. Even though we cannot expect every patient to go home and review everything that was covered at the doctor's office, by not providing them with materials they won't have the simple tools to remind them of what was discussed. He felt that providing the information was the first step in helping these patients to make their health a priority in their life. Being at the doctor and receiving an assortment of information on several health concerns can be overwhelming, but providing materials can help a patient look at them in manageable pieces and develop an understanding for them individually.

Two areas of my project that I discovered were already being addressed by UNHS were diabetes and smoking. UNHS has a diabetic care team that meets with individuals diagnosed as diabetic or pre-diabetic and teaches them the importance of checking their blood sugars and utilizing their medications. They also address eating habits and exercise. They can work with patients to identify and avoid secondary complications of diabetes as well. Even though I was planning on addressing glucose readings and diabetes in my project, I felt that their diabetic team was already covering this health concern very well. By checking glucose I could help those already diagnosed manage their condition and could identify people who had never been diagnosed as diabetic or pre-diabetic. Given my time contraints with each patient, however, I decided it would be best to refer them on to the diabetes team for further information on managing diabetes. UNHS also has smoking cessation materials that were developed as part of the Americorp Program. Again, I felt if patients were smoking I could utilize these materials and the smoking cessation program that was already in place and focus my time with the patients on other health concerns.

Despite Nashville being a metropolitan area it was interesting to learn that UNHS is actually set up more like a rural community health system. Rather than having large community health clinics that provide a multitude of services, including speciality services, they have 17 clinic dispersed around the area with the goal of providing access to primary healthcare in neighborhoods where healthcare services are limited. But more than that, UNHS has taken steps to become a part of the neighborhood. Not only do they place their clinics in the hearts of these neighborhoods, they work with the community to provide services at local events, ranging from church functions to high school sporting events. I knew this commitment to community involvement would play a very important role in me being able to implement some aspect of my original project into this community.

Making the Adjustment: Preparations

I was able to develop an initial questionnaire that patrons could fill out while waiting for their screening. It was based both on the information gathered by the software program I was going to utilize for the screenings

as well as information I had gathered from speaking with administration at UNHS. It included basic contact information, whether the patron was currently a patient at UNHS and if they had a primary care provider. It also asked if they had been screened for diabetes, high blood pressure or cholesterol in the past to identify how many people we were able to provide a new screening for. I then asked about activity level at work and home, perceived stress levels, and patient's perceptions on how their eating habits affected their health. They were also asked about alcohol use and smoking. I also included a portion on the questionnaire that asked about their church affiliation and whether or not they would be interested in a weight loss challenge; this was done to assist a fellow GE-PCLP scholar with her project.

Next I developed a booklet about body mass index. I wanted to provide information about BMI but also address strategies of how patients could change their BMI. I included a BMI chart in the book so the users could see where they currently fell and what weight corresponded to each category: normal, overweight and obese. I then included a variety of information on BMI, focusing on four aspects: setting goals, identifying barriers, improving diet, and increasing activity. I tried to make the booklet engaging, encouraging patients to set reasonable goals and write down barriers. I also wanted to provide information for tracking Calories and keeping track of activity. By addressing these four aspects I was hoping to empower the patients to take manners into their own hands and improve their lifestyles in reasonable and sustainable ways.

I then developed handouts on high blood pressure and high cholesterol. The blood pressure handout described what blood pressure is measuring, why it is important, what the normal numbers are, the risks associated with elevated numbers, things that cause high blood pressure, and what patients can do to lower their blood pressure. It also contained an easy to read chart that showed the difference between normal, pre-hypertension and hypertension. I hoped to use this chart to show patients where their numbers fell and to encourage them to read the handout on their own so they could develop a better understanding of the condition, in case they couldn't remember all of the information I had told them at the screening. The cholesterol handout was similar in that it contained information about what cholesterol is, why it is important, what causes the number to be high, what the normal levels are, risk associated with elevated levels, and what patients could do to lower their cholesterol. Again, I included a chart to show the patients whether the fell into the normal, borderline or elevated ranges and could encourage them to review the information on their own.

I also developed a handout that discussed adult preventative healthcare based on the discussion I had regarding a struggle to achieve HEDIS measures when it comes to cervical cancer screening. Other areas we discussed involving patients being unaware of their needs for new screenings include mammograms, prostate cancer screening, adult vaccinations, and colon cancer screenings. Instead of just giving the individual recommendations for the specific age of the patient I thought it would be useful to have adult prevention from ages 18 to 70 years of age so they could identify screenings and vaccinations they may have missed as well as plan for future preventative healthcare.

Because of the smoking cessation program and diabetes team that was already in place at UNHS, I did not develop additional materials to utilize for my project for these subject areas. I planned to encourage patients to utilize the services already provided by UNHS in these areas.

Project Plan In Action: The Screenings.

My first screening was done on August 11th at St. Luke's Church Community Center. They were having a health fair for their community and I was able to provide BMI, cholesterol, glucose and blood pressure checks. We screened 18 patients. In Figure 1 below, one can see that hypertension screening is something that many of the participants had undergone before. A lesser percentage of the population had been screened for diabetes and hyperlipidemia.

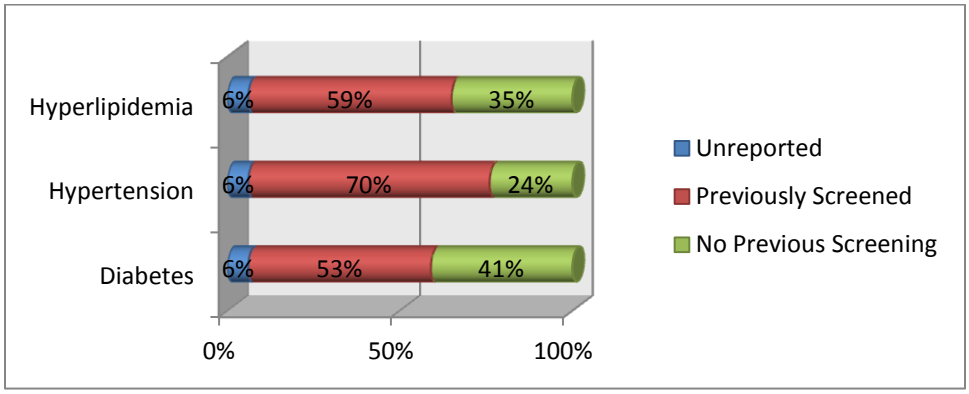

Figure 1. Percentages of St. Luke's participants that reported previous screenings for hyperlipidemia, hypertension and diabetes.

Total results for participants in the testing of blood sugars, hyperlipidemia, hypertension and BMI can be seen in Figure 2. I feel that this population reflected well the discussions with UNHS personnel that controlling hypertension and addressing BMI were two areas that they were currently struggling with. I was pleasantly surprised by low percentages of hyperlipidemia. One thing that I did find surprising was the number of participants that knew they had hypertension and were on medications but were not taking them consistently. I heard several times that they knew their numbers would be high that day because they hadn't taken their medication that morning. They said that they wanted to get a "true reading" of their blood pressure. I think this may help identify why UNHS is having difficulty controlling the blood pressure. The patient's may not be taking their medications prior to their appointments. This could be a good educational point for practitioners to utilize when placing patients on the medications. Patients need to understand that these medications will not cure the problem, but only control it in hopes of reducing secondary complications. Additional time may need to be spent with patients to explain the importance of taking the medications on a regular schedule as prescribed, including the days that they are seeing their practitioner for monitoring of the disorder. I was pleasantly surprised how open patrons were to discussing their BMI and strategies to reduce it, especially given the high percentage of participants that fell into the obese category. I felt like the booklet was well received.

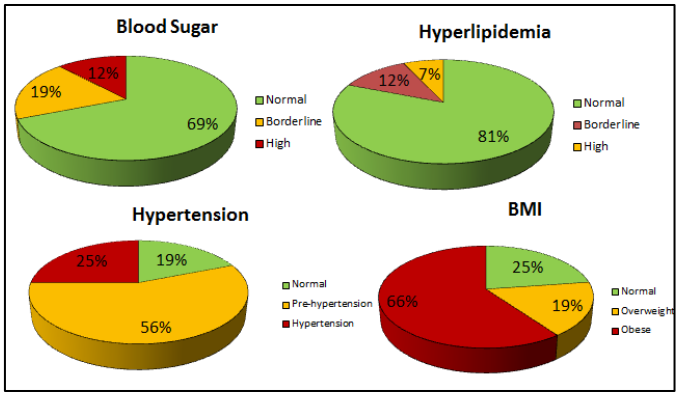

Figure 2. Results for St. Luke's participants screened for high blood sugar, high cholesterol, high blood pressure, and BMI.

My next screening was at the Downtown Clinic on August 16th. I set up in the lobby of the clinic and screening patients as they were waiting for their appointments or after they had completed their appointments. I saw 12 patients in my time there. In Figure 3 you can see the number of participants that had and had not been previously screened. A higher percentage of participants here had no previous screenings for diabetes and hyperlipidemia than we saw at the St. Luke's screening. Again, the screening and identification of hypertension was more common.

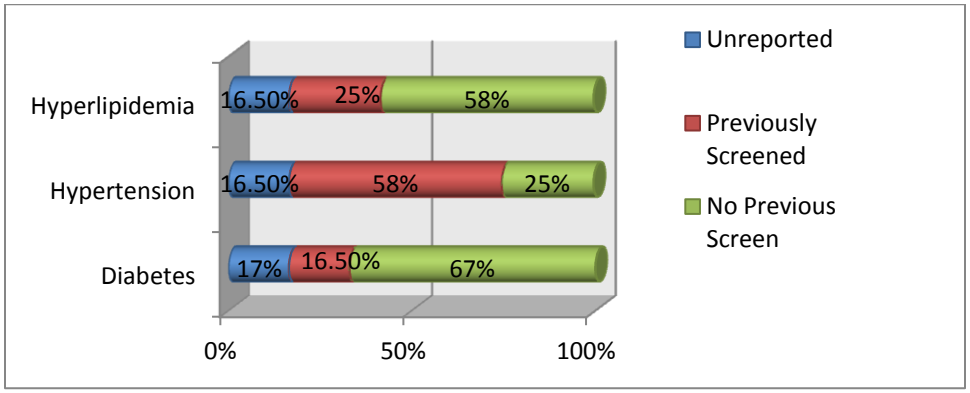

Figure 3. Percentages of Downtown participants that reported previous screenings for hyperlipidemia, hypertension and diabetes.

Total results for participants in the testing of blood sugars, hyperlipidemia, hypertension and BMI can be seen in Figure 4. Again, the control of hypertension was an issue within this population. There were a few more participants in this group that were unaware that they had high blood, so I was able to direct them towards the UNHS services to have it rechecked and possibly begin treatment if it remains elevated. I did try to talk to them about lifestyle habits that can increase blood pressure so they could take steps to control it on their own until they were able to see a practitioner.

Again, the patients here received the information well. Providing them with a folder that contained the information was well received. I understand many of these patients were living at the homeless shelter there

and having a place to keep personal information seemed to resonate with them. One area that I had not considered that they brought to my attention was in the area of adult preventative screening. When I addressed the prevention handout that I had included and reviewed what screenings they would need given their age I had several patrons point out that when you are in a shared living space, doing the necessary preparations for a colonoscopy becomes almost impossible. I think for providers it is important to recognize this barrier and have alternative options for these patients. The Task Force indicates that screening for colorectal cancer can be done using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults beginning at age 50.[2] Hopefully these alternatives can be recommended to this population so that they can receive the necessary screening.

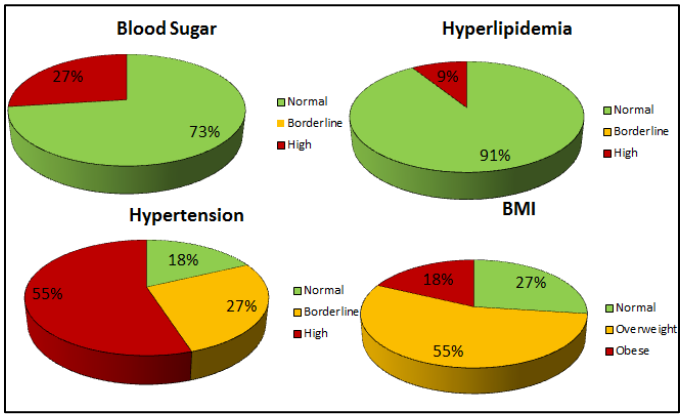

Figure 4. Results for Downtown participants screened for high blood sugar, high cholesterol, high blood pressure, and BMI.

The next screening was performed at Maplewood High School. Because it was done at a sporting event a complete screening was not performed. We were limited in space in the mobile unit and those utilizing the services were limited in the amount of time they could spend at the screenings so we just performed blood pressure, cholesterol and glucose checks. The blood pressure readings were recorded for patrons but not for our information. The cholesterol and glucose checks, as seen in Figure 5, revealed levels that were grossly normal. Many of the patients that utilizing these services were aware of their current health problems and receiving treatment if they had hypertension, diabetes, or hyperlipidemia. We did receive feedback about providing this service at local sporting events. Several participants mentioned that they thought it was a good idea because it kept people thinking about their health. It also allowed participants to support their kids and not be pulled away from work or home for the services. Also, by taking a moment to check their health at an event like this, parents are setting a good example for their children.

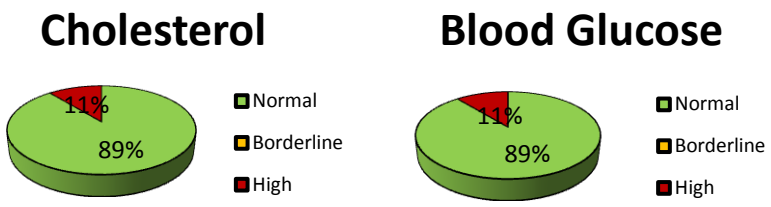

Figure 5. Results for participants at Maplewood High School sporting event screened for high blood sugar and high cholesterol.

My final screening was at the First Church of the Nazerene on August 19th. The population that attended this screening was composed of a variety of people. At least half of the patrons were homeless and not receiving regular health services. Twenty-five people participated in the screenings. History of previous screenings can be found in Figure 6. Again, hypertension was the most often screened for condition, while hyperlipidemia and diabetes were screened less often. This particular population had the worst reported results for previous screenings, indicating a need for more screening events for this population.

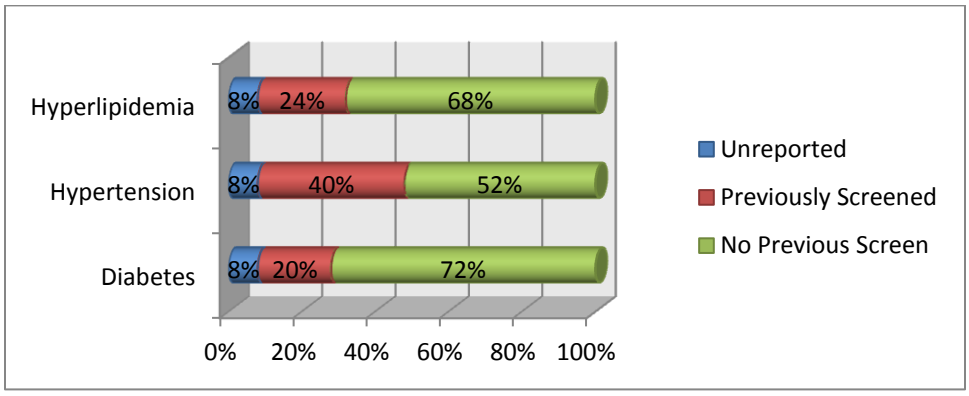

Figure 6. Percentages of participants at The First Church of the Nazarene that reported previous screenings for hyperlipidemia, hypertension and diabetes.

Total results for participants in the testing of blood sugars, hyperlipidemia, hypertension and BMI can be seen in Figure 7. In this population there was a higher incidence of borderline and high cholesterol. As seen in previous screenings, hypertension was a considerable problem. The obesity in the population was greater than that of the Downtown participants but not as high as the population screened at St. Luke's. I received similar feedback at this event that I had at the others. Participants here were very interested in the preventative health handout provided to them. One person told me that because they don't see a doctor on a regular basis they had no idea what kind of vaccinations they should be getting. This individual had a friend that recently experienced shingles and was happy to know that there was a vaccination available to help them prevent going through the same experience.

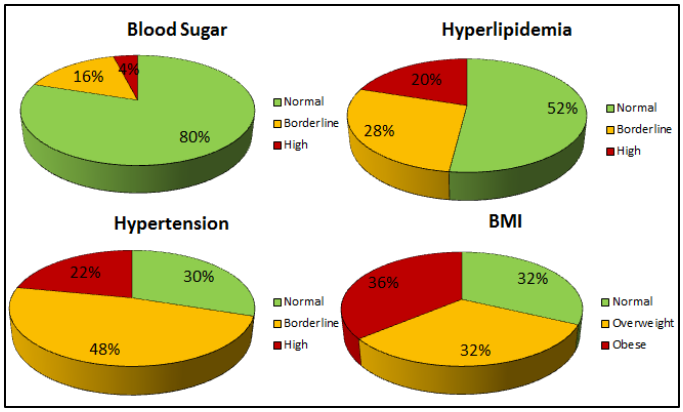

Figure 7. Results for Downtown participants screened for high blood sugar, high cholesterol, high blood pressure, and BMI.

Overall, I feel like the screenings were a success. In total we did 57 comprehensive screenings and completed 66 cholesterol and blood glucose checks. As seen in Figure 8, of the 57 that underwent comprehensive screenings, more than half the participants had been previously screened for hypertension. However, only about 1/3 of participants reported that they had previously been screened for hyperlipidemia and diabetes.

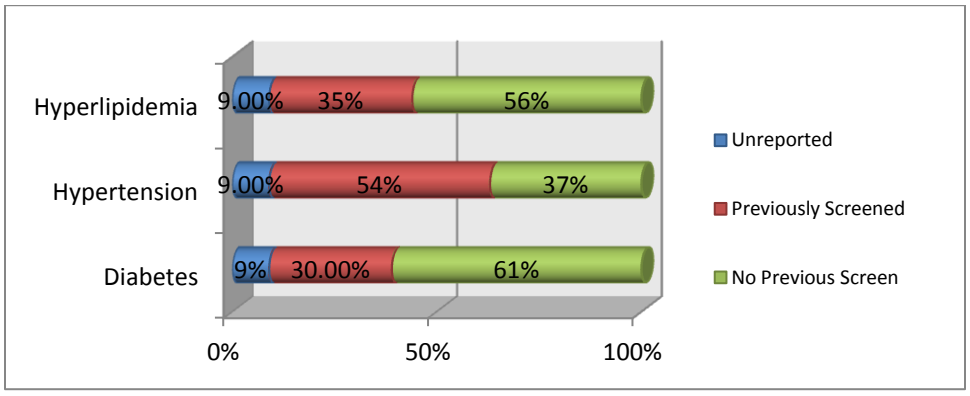

Figure 8. Percentages of participants at The First Church of the Nazarene that reported previous screenings for hyperlipidemia, hypertension and diabetes.

We recorded 57 screenings for hypertension and BMI, as seen in Figure 9. Almost half of the participants screened at these events were in the borderline range for hypertension. Another 30% had high blood pressure at the time of the screening and only about 20% had normal blood pressure readings. I think this truly speaks to the effort that needs to be made to identify what may be causing such a high number of people in this population to have abnormal readings.

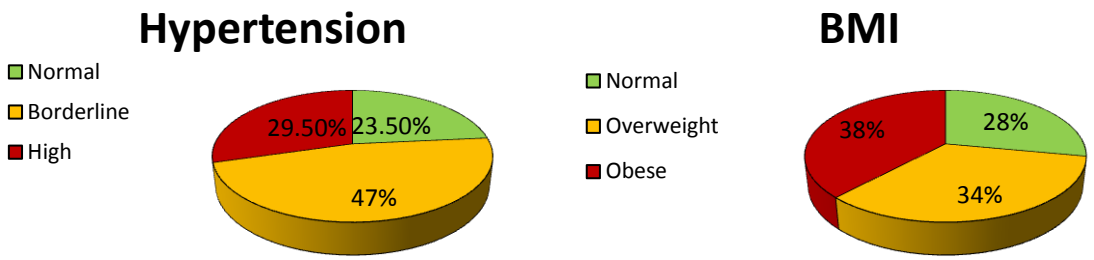

Figure 9. Blood pressure and BMI results for total screening participants.

Sixty-six participants underwent blood glucose and cholesterol checks during the screenings as seen in Figure 10. These screening results showed better numbers than the blood pressure and BMI. Some of this may be attributed to the work already being done by UNHS through their diabetes team.

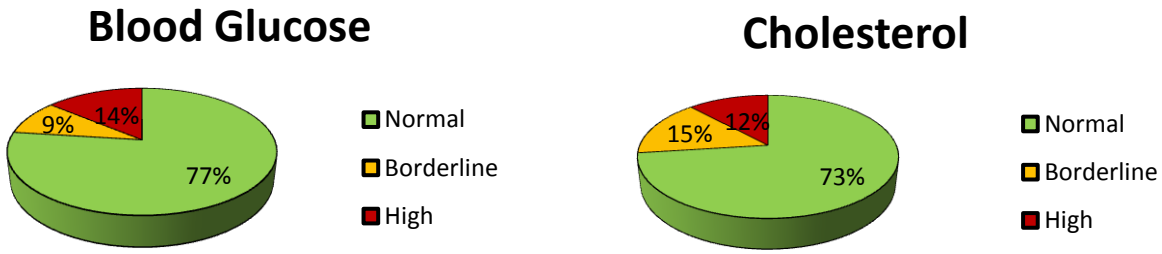

Figure 10. Blood glucose and cholesterol results for total screening participants.

Moving Forward: The Future of "Know Your Numbers" in Nashville and Beyond.

After speaking with several administrators at UNHS, they are interested in purchasing a CardioChek analyzer so they continue cholesterol checks at screening events. I feel the cholesterol checks were well received by the community during my project and hope that UNHS will be able to continue to provide this service in the communities that they serve. I provided my BMI Booklet, Blood Pressure Handout, Cholesterol Handout and Adult Preventative Healthcare sheet to the Chief Medical Officer and he feels these will be useful in screenings. He also feels the BMI Booklet will be useful to providers in the clinical setting as a way to approach the BMI conversation in manner that will make the conversation more comfortable for the patients. He also liked the format of the Adult Preventative Healthcare Guide and feels this will be a good reminder to both providers and patients and will help UNHS meet their HEDIS measures.

Working with United Neighborhood Health Services in the Nashville community has given me numerous tools to utilize as I move forward in my career as a physician as well. I have gained a new appreciation for community health centers and how they run. I enjoy the idea of being part of a community in the way that UNHS is and can see myself working in a community health center in the future. I was also pleased to discover that this concept of providing more comprehensive screenings is feasible and can be completed in the community setting. I feel that if I were able to form interdisciplinary teams in the future to take out in a rural setting to perform these screens I could provide a much needed service in a format that is both well-received and very informational to the patients.

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2. Screening for Colorectal Cancer, Topic Page. March 2009. U.S. Preventative Services Task Force. http://www.uspreventiveservicestaskforce.org/uspstf/uspscolo.htm