Creating a Sustainable Model for Improved Utilization of a Mobile Health Clinic in Nashville, TN

Introduction

The diagnosis, treatment, and prevention of chronic medical conditions continues to be one of the most important, yet least successfully met, challenges facing the world today. According to the Robert Wood Johnson Foundation, in 2009 “145 million people—almost half of all Americans—live[d] with a chronic condition”\(^1\). Of these diseases, three of the most prevalent are hypertension, diabetes, and obesity. Hypertension affects 60% of adults over the age of 65, and 30% of adults from ages 18-64; similarly, diabetes affects 12% of patients between the ages of 18-64\(^2\); and, as of 2012, 64.5% of Americans are either overweight or obese\(^3\).

Uncontrolled, these chronic conditions have grave implications for an affected individual’s quality of life. Assessments completed by the CDC’s Health-Related Quality of Life program found that, “adults with diabetes report experiencing 9.9 overall unhealthy days per month, compared with 5.1 overall unhealthy days...for adults without diabetes”. Similarly, individuals having had a heart attack, coronary heart disease, or stroke—the sequelae of uncontrolled hypertension--“reported an average of 10 overall unhealthy days in the past month, 5 more overall...than among persons not having had one ”\(^4\). Beyond the obvious human impact, this crisis of healthcare is also monstrously expensive; one U.S. News and World report estimated in 2009 that “over 75% of the $2.2 trillion the United States spends on healthcare goes toward treating chronic conditions like diabetes, heart disease, and cancer”\(^5\). It is clear that a solution geared toward prevention or early detection of these disorders could potentially impact the lives—and wallets—of hundreds of thousands of Americans for the better.

Such a program would be especially welcome in Tennessee—a state whose population suffers acutely from these illnesses and their preliminary risk factors, frequently more than the national trend. In the CDC Prevalence and Trends Data for Tennessee for 2012, for example, 11.9% of respondents indicated diabetes as a chronic health indicator--higher than the US average of 8.7\(^6\). In terms of BMI, 32.7% of Tennessee respondents

---

1 http://www.rwjf.org/content/dam/farm/reports/reports/2010/rwjf54583
2 See footnote 1.
3 http://apps.nccd.cdc.gov/cdi/
4 http://www.cdc.gov/hrqol/key_findings.htm
were normal weight, 34.2% were overweight, and 31.1% were obese.\textsuperscript{7} Further, Tennesseans reported an average of 7.34 unhealthy days in a 30-day period—above the national average of 6.05 unhealthy days in that timeframe.\textsuperscript{8}

Specific studies have been done for Davidson County residents, including those living in Nashville, TN. According to the 2011 Center for Disease Control “Behavior Risk Factor Surveillance System—Risk Trends” analysis for this county, 14.8% of respondents were diabetic; 30% were obese; and 35.3% indicated that they had been told that they had high blood pressure\textsuperscript{9}. Residents of this area do not only manifest high levels of the conditions themselves, however. They also report high levels of participation in the four modifiable risk factors identified by the CDC as contributing significantly to the development of these conditions: lack of physical activity, poor nutrition, tobacco use, and excessive alcohol consumption.\textsuperscript{10} According to a study performed by the Nashville Public Health Department in Davidson County in 2011, over one-third (36.4%) of the survey respondents reported “no kind of physical activity during the month prior to the survey”; 86.4% consume fruits and vegetables “less than 5 times a day”, and 8% eat “no vegetables or fruits at all” in a given day\textsuperscript{11}. 1 in 6 respondents were current smokers, and just over a quarter (25.3%) were former smokers.

Primary care clinics, with their focus on long-term management of chronic patients and establishment of preventive medical interventions, are often the first and best line of defense in reducing the negative impact of prevalent medical diseases. In Nashville, United Neighborhood Health Services, a Federally Qualified Health Center, is one of the oldest and most well-established primary care clinics available to patients in need of medical care. Its mission is to deliver vital medical services to all, regardless of ability to pay; and, by doing so, it has the greatest chance of reversing what is arguably an unnecessary trend of illness and loss of life, in the area it serves.

Background

As part of its resources to provide preventive care to its community, United Neighborhood Health Services (or UNHS) owns and operates a Mobile Health Screening Unit (or MHSU) whose purpose is to bring a “doctor’s office”—and with it, the opportunity to receive a basic medical screen—right to the doorstep of its patients. The goal of these preventative screens is to identify individuals that are at high risk for developing hypertension, diabetes, and other chronic illnesses while still asymptomatic, by completing simple and free assessments of blood glucose levels, blood pressures, and Body Mass Index (BMI) counts. Once identified, these individuals can be both medically counseled at the point of care (the MHSU), and referred to UNHS for further medical evaluation.

\textsuperscript{7} http://apps.nccd.cdc.gov/brfss/display.asp?cat=OB\&yr=2012\&qkey=8261\&state=TN
\textsuperscript{8} http://www.cdc.gov/hrqol/data/maps/figure5-meanunhealthydaystable.htm
\textsuperscript{9} http://apps.nccd.cdc.gov/gisbrfss/map.aspx
\textsuperscript{10} “Chronic Diseases and Health Promotion,” 1. http://www.cdc.gov/chronicdisease/overview/index.htm
\textsuperscript{11} https://www.nashville.gov/Portals/0/SiteContent/Health/PDFs/HealthData/2010-2011_BRFSS_Final_Report.pdf
and treatment. It is easy to see that such a tool has the potential to make a significant impact on the health outcomes of thousands of individuals in the communities served by UNHS.

When examined more closely, however, the MHSU’s ability to positively affect its target population was found to be hampered by three significant problems. First, the MHSU did not distribute any permanent data result record to its screened patients; although they received blood pressure and glucose checks, patients were simply told their “numbers”, and nothing was written down for them. As a result, patients quickly forgot their results, and were not significantly motivated to make necessary lifestyle modifications—ultimately meaning that the screen made little to no positive impact on their health. Second, the MHSU did not collect or track any patient information, even anonymously, for its own use. Not having this epidemiologic data made it impossible for the clinic to track the MHSU’s effectiveness in positively impacting the community, or to conduct analysis to determine statistically significant interventions—which eliminated any case being made for additional grant support for the clinic. Finally, in order to conduct the medical screens, UNHS was using a staff-paid medical provider, paying a flat “overtime” hourly rate regardless of the number of patients screened. This both limited the MHSU’s functioning to weekend events only (when UNHS clinics were not open, and staff were available) and proved extremely expensive for UNHS to fund over the long term.

These three key problems—lack of data for the patient, lack of data for the clinic, and the financial burden of paid staffing—resulted in a MHSU that was high-cost and low-impact for both the clinic and its patients. Such a situation could not continue for UNHS, a clinic with limited resources; nor for its target community, who are in dire need of preventive medical care. It was clear that a more efficient and sustainable model needed to be developed for the MHSU, in order to improve its utilization and impact for all parties involved.

Our project aimed to develop an improved healthcare delivery model for the MHSU that would address the specific weaknesses of the initial model, and resolve them in a fashion that the clinic could sustain over the long term. We additionally resolved to determine measurable goals and parameters to define and track “success” in this endeavour, and use them to show definitively that the community was being positively impacted by the changes implemented.

**Methodology**

To define our project, three key areas in which we desired to see measurable, quantitative improvement in the functioning of our Mobile Health Screen Unit were identified; once this was done, specific plans and tools were developed to meet each goal. The three “key goals” were:

- Streamline the collection of data for both patients and clinic alike
- Increase the frequency of “mobile clinic” screening events
Decrease the cost to UNHS

In order to meet the first goal, four main sets of resources were developed. First, two sets of patient data forms (one for the patient, and one for the clinic) were created. The patient-completed “Health Screening and Assessment Form (Appendix A) was created to provide anonymous screen data to UNHS; the screener-completed “Patient Result Form” (Appendix B) was created to be kept by the patient. Both forms were used in the screening process, and listed all significant findings of the screening for the respective parties. Second, easy-to-understand and medically accurate patient education materials about diabetes, hypertension, and tips on achieving a healthy lifestyle, were created in both Spanish and English (Appendices C-E). These educational packets were consistent with current medical guidelines, and could be reproduced at no cost to the clinic; they were distributed to screened patients at each event when medically indicated. Finally, two updatable Excel databases (one adult, one pediatric) tabulating patient results in an anonymous fashion were created. These enabled real-time epidemiological information about the patient population to be quantified, and allowed the clinic the ability to perform data analysis on the efficacy of the MHSU in its interventions. (Results of the data analysis taken from this database will be discussed further in the Results and Discussion sections below).

To meet the second goal, deliberate action was taken to increase successful scheduling and completion of weekday screening events. Based upon their high volume of “traffic”, available weekday space for community events, and interest in healthcare promotion, community centers were specifically selected as the venue of choice for hosting MHSU screening events. Both small “neighborhood” and large “regional” centers, collectively serving the entire Nashville area, were considered and included.

To meet the third goal, it was decided that local healthcare students (such as medical students, medical residents, nursing students, family nurse practitioner (FNP) students-in-training, and others already experienced in taking blood pressures and blood sugars) would be trained and recruited to staff MHSU events, replacing the paid UNHS staff provider. It was hoped that, in addition to eliminating the financial burden on UNHS, this might additionally serve as a impetus for involved students to become passionate about community health, and perhaps to maintain the MHSU project in the future (similar to the way medical students oversee and staff various “after-hours”, medical-school-affiliated clinics currently). Special tools were developed to ensure that using healthcare students would not compromise the quality of care or information provided. For example, in order to ensure consistent results-based patient counseling within medically accurate categories across all screens, a “script” was created for use by all “screeners”, predefining and classifying measured patient values into these categories. For example, one such prompt read: “FOR FINGERSTICK GLUCOSE: If result is >200 and patient is symptomatic, advise patient that glucose is “urgently high”, and that they should visit their physician TODAY or CALL 911.” (Appendix F)
The overall timeline for the mobile screen improvement project was six weeks. One week was allotted for a survey of the mobile unit’s original operational system, and development of an “action plan” for improvement. During this initial week (before any changes were initiated), a record was made of the procedures and statistics of the MHSU in its state at the time of project implementation (the “Weekend Provider Model”). This was done in order to establish a “baseline” against which the project’s modified protocol (the “Weekday Student Model”) could be compared to determine success in achieving the three key goals of the project. A second one-week period was allotted for development of tools, recruitment of health student volunteers, and booking of weekday mobile events. A three week period followed in which active conduction of weekday, student-run mobile screening events took place; a final one-week period was reserved for statistical analysis of patient results.

Upon completion of tool development, a total of three zip codes (37206, 37207, and 37115) were initially targeted for screening events, based on their possession of an Eastern Division UNHS clinic site within their boundaries for direct patient referrals. From the list obtained of all Nashville local and regional community centers for potential screening event sites, six centers fell within these zip codes. Directors of each community center were contacted, and five initial events were approved and scheduled, with at least one screening event in each zip code. (A list of all community centers and scheduled screening events can be found in Appendix G). Flyers were drafted and distributed at each community center (Appendix H) to inform community members of the events at least one week prior to the event.

In order to find healthcare students to conduct the screenings, Google Drive was used to create an editable interactive form available on the Internet at tinyurl.com/unhshealthscreens (screen shots of this webpage can be seen in Appendix I). Students who wished to volunteer time on the MHSU for this project were directed to this website via various methods of recruitment (described in further detail below) and were instructed to complete the online form, self-selecting their screening event and indicating their level of medical training, as well as their comfort level performing the various services offered by the screen. Once submitted, the data appeared in real time, in a private Google Spreadsheet accessible to UNHS in Google Drive. This allowed event coordinators to know in advance how many students would be participating in each event.

Recruitment letters were developed and distributed to various pools of healthcare students, utilizing numerous avenues. Medical school advertising included the “hard copy” letter, and a short form advertisement posted for the project (Appendix J), at Meharry Medical College; a posting also went to the entire school e-mail listserv. Medical student clinics (including Meharry’s Waverly Student Clinic, Vanderbilt’s Shade Tree Student Clinic, and Vanderbilt students at the Siloam Family Health Center) were sent these forms as well, and were posted by administrative contacts. Medical residents completing clinical rotations at UNHS facilities were recruited via Dr. Jayashree Nathan, and FNP students completing coursework at Tennessee State University were recruited by Dr. Carol Bompart, FNP (both staff members at UNHS). Additional FNP programs recruited included
Belmont School of Nursing, Lipscomb School of Nursing, and Vanderbilt School of Nursing. Finally, requests were made to fellow on-site Primary Care Leadership Program students for assistance, via Facebook.

Patient screenings were conducted as follows:

- Upon arrival, each patient completed a Health Screening and Assessment Form. Questions on this form included: patient demographic information (age, ethnic background, address, etc); a self-reported height and weight; and enquiries about modifiable risk factors (including smoking habits, indication of a medical home visited within the past year, etc.). Patients also indicated yes/no to a list of diabetes risk factor questions, and indicated whether they had/did not have a history of hypertension and diabetes, to determine whether high values read at the event were newly-detected positives, or indicative of a poorly controlled chronic state. Finally, a question assessed patient use of the Emergency Department during the past month to screen for possible misuse of this service, and to determine need for counseling on proper acquisition of primary care at a community clinic.

- Completed forms were reviewed one-on-one with the screening healthcare student. Students compared patient’s height and weight to a Body Mass Index chart obtained from the National Institutes of Health; patient BMI was calculated and noted on both data forms.

- Patient blood pressure was read using either a Welsh-Allyn electronic blood pressure machine or a manual sphygmomanometer. Results were noted on both data sheets.

- Patient blood glucose was read using an Ascencia Countour finger-stick glucometer; results were noted on both data sheets.

- Based on patient results, healthcare students made recommendations to patient about appropriate window of time for follow-up care with primary care provider, as well as verbal counseling about hypertension, diabetes, and smoking cessation when relevant. (Patient counseling and medical information distribution about diabetes was indicated if either the patient’s glucose reading was abnormally elevated, or if 3 or more risk factors for diabetes were self-reported by the patient. Comparable hypertension counseling was indicated if either an abnormal blood pressure was recorded, or if smoking or high salt diets were self-reported.)

- All patients (regardless of screening result) were given the “How to Live A Healthier Lifestyle” patient education packet. This contained information about developing a healthy eating plan, ways to increase daily exercise, tips for healthy weight loss, and charts listing the number of calories burned by a 150 lb. person doing 30 minutes of various activities.

- Each patient was given their completed Result Form, appropriate medical information sheets, and a flyer for their nearest United Neighborhood Health Services location.
Pediatric encounters were completed as above, with the following modifications:

- Pediatric patients were only screened if a parent or guardian over the age of 18 accompanied the child.
- All pediatric blood pressures were read with a pediatric manual sphygmomanometer.
- Counseling recommendations and patient education materials were given to the accompanying parent, rather than to the child.
- For those children whose parent self-reported the child’s height and weight, child BMI percentages (based upon age in months, height in centimeters, and weight in pounds) were calculated at the conclusion of each event, utilizing the Center for Disease Control’s online BMI Percentile Calculator\textsuperscript{12}.
- Children’s weight (if parent-reported) was classified as “healthy weight”, “overweight,” or “obese” based on guidelines stated by the CDC\textsuperscript{13}.
- When possible, the screened child’s blood-pressure percentile for age was calculated by first obtaining the child’s stature-for-age percentile from charts supplied by the Centers for Disease Control\textsuperscript{14}, and then using the “Blood Pressure Tables for Children and Adolescents” charts supplied by the National Institute of Health\textsuperscript{15}. Children’s blood pressures were also classified as “normal” (below the 90\textsuperscript{th} percentile of blood pressure for stature and age), “pre-hypertensive” (between the 90\textsuperscript{th} and 95\textsuperscript{th} percentile of BPFS&A), or “hypertensive” (above the 95\textsuperscript{th} percentile of BPFS&A) based on the guidelines stated by the USDA/ARS Children’s Nutrition and Research Center\textsuperscript{16}.

Student participants, at the conclusion of their shift, completed an anonymous “MHSU Student Participant Feedback Form” (Appendix K) asking them to rate various aspects of the project and their experience on a 1-10 scale. Students also indicate their willingness to be involved with similar screening events in the future on a similar scale, to ascertain the likelihood of sufficient student interest to conduct future events in the long term. Students were also invited to write in any comments or suggestions for improving the project, to determine areas for future project revision.

**Results**

At project conclusion, eight events took place over four zip codes (37206, 37207, 37209, and 37216) during our three-week data collection period. This was significantly different from our original plan to host at least one event in each zip code served directly by an Eastern Division UNHS site. As the project progressed, lack of a

\begin{itemize}
  \itemhttp://apps.nccd.cdc.gov/dnpabmi/Calculator.aspx
  \itemhttp://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html
  \itemhttp://www.cdc.gov/growthcharts/html_charts/statage.htm
  \itemhttp://www.nhlbi.nih.gov/guidelines/hypertension/child_tbl.htm
  \itemhttp://www.bcm.edu/bodycomplab/Flashapps/BPVAgeChartpage.html
\end{itemize}
driver for the MHSU resulted in three planned events being rescheduled or cancelled entirely (including our sole scheduled screen in the 37115 zip code [Madison]). One additional event in the 37206 area was added by special request of the screening site to our protocol. The two additional zip codes resulted from the inclusion of data from two events booked previous to the implementation of the program and extraneous to the original model, but which made use of the new protocols as well.

A total of 102 patients (73 adult, 29 pediatric) were screened across all events (see Graph 1, at left). One set of adult data and seven sets of pediatric data were rejected for statistical analysis due to insufficient information; this left $n = 72$ for adult data, and $n = 22$ for pediatric data across all zip codes. Since patient participation was noncompulsory, each screened individual recorded results only in the portions of the screen desired; thus, total analyzed $n$ varied for each component of the screen studied (BMI, glucose reading, blood pressure reading, etc.) For the adult data, our largest $n$ (indicating possession or non-possession of a medical home) was 72; our smallest $n$ (finger-stick glucose) was 66. For the pediatric data, our largest $n$ (indicating possession or non-possession of a medical home) was 21; our smallest $n$ (child’s BMI percentile) was 7.

![Graph 1. Total Patients](image1)

**Graph 1. Total Patients**

**Patient Demographics--All Zip Codes (as % of 100)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Normal or Prehypertensive / Normal Weight / Medical Home</th>
<th>Elevated / Overweight / No Medical Home</th>
<th>High / Obese</th>
<th>Urgent High / Morbidly Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Pressure</td>
<td>72.47</td>
<td>23.19</td>
<td>2.89</td>
<td>1.44</td>
</tr>
<tr>
<td>Blood Sugar</td>
<td>81.82</td>
<td>12.12</td>
<td>4.55</td>
<td>1.52</td>
</tr>
<tr>
<td>BMI</td>
<td>43.66</td>
<td>25.35</td>
<td>15.49</td>
<td>15.49</td>
</tr>
<tr>
<td>Medical Home</td>
<td>70.83</td>
<td>29.17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Graph 2. Statistical analysis of all adult screening data collected during the](image2)

**Graph 2. Statistical analysis of all adult screening data collected during the**

Results of statistical analysis of adult screening data over all zip codes are shown in Graph 2 (above). Over all zip codes, the vast majority of adult patients (72%) were considered non-hypertensive (either “normal”, classified as a systolic / diastolic pressure of <120/80, or “pre-hypertensive”, with a systolic / diastolic pressure range of 120-139 / 80-90).
Of those considered hypertensive at time of screening, a significant minority (23%) were classified as having “elevated” blood pressure (systolic / diastolic ranges of 140-160 / 90-100). A relative few patients (2.9%) were detected as having “high” blood pressure (systolic / diastolic range 160-180 / 100-110), while a very small but highly at-risk population of “urgent high” individuals (systolic / diastolic pressures >180/110) were identified (1.4%). Of those screening hypertensive, 21% were “new positives”—patients that had never been told previously that they had high blood pressure. These “new positives” accounted for 5.8% of all individuals screened for hypertension.

Similarly, a majority of adult patients (nearly 82%) screened as normoglycemic (blood sugar <100 mg/dL if fasted for 8 hours or more, and <140 mg/dL if non-fasted [eaten 8 hours or less previous to screen]). Of those considered hyperglycemic at time of screening, 12% classified as having “elevated” glucose levels (between 100 - 119 mg/dL if fasted, or between 140-200 mg/dL if non-fasted); nearly 5% were classified as “high” (glucose >120 mg/dL fasted, or >200 mg/dL non-fasted, but asymptomatic for glucose toxicity). Significantly, one screened individual (1.5%) registered as “urgent high” (glucose >200 non-fasted, with additional signs of glucose toxicity [sweating, shaking, chills, blurred vision, etc.]. It should be noted that this individual was counseled to go to the Emergency Department immediately.) Of those considered hyperglycemic, 25% were “new positives”—patients that had never been told previously that they had high blood sugar. These “new positives” accounted for 4.5% of all individuals screened for hyperglycemia.

Of those screened for body-mass index (BMI), only 15% fell within a “normal” weight range (BMI between 18 and 24.9). About 25% were classified as “overweight” (BMI between 25 and 29.9); 43.6% (the majority of those screened) fell into the “obese” category (BMI between 30 and 39.9); and a small but very at-risk number of patients (15%) were found to be “morbidly obese” (BMI>40).
Finally, 70% of screened individuals reported being in a medical home (listed one health care provider that they visited regularly, and had seen within the past year); 30% were not.

In order to investigate the hypothesis that lack of a medical home is a risk factor for poorer health outcomes, a comparative analysis was made across all screening parameters, contrasting those adult patients
who self-reported “having a medical home” from those who reported “no medical home”. The results are shown in Graph 3 (above, previous page). Overall, patients not in medical homes (NMH) were more likely to be pre-hypertensive or hypertensive (35%) than those in medical homes (24.5%); additionally, NMH hypertensives tended to experience greater severity of hypertension (10% in “high” or “urgent high” categories) than MH hypertensives (2% in these categories). In terms of blood glucose, although more MH individuals screened as hyperglycemic (19.1%) than NMH individuals (15%), NMH hyperglycemics were more severely hyperglycemic at screening (10% in “high” or “urgent high” categories) than MH hyperglycemics (4.2% in “high” category, 0% in “urgent high”). Interestingly, in terms of BMI, MH patients tended to be overweight or obese (76% fell into these central categories), while the majority of NMH patients (61.9%) were in peripheral categories (dual peaks were seen at either normal BMI [33.3%] or morbidly obese [28.6%]).

Statistical analysis of pediatric data across all zip codes and screening parameters is shown in Graph 4 (above). Due to small n, comparative analysis between pediatric patients in medical homes and pediatric patients not in medical homes was not performed. Overall, the majority of pediatric patients screened were classified as normotensive, at a healthy weight, normoglycemic, and within medical homes. However, a small number of pediatric patients (20%) did
screen as pre-hypertensive or hypertensive for their height and age percentiles; 28% were not at healthy weights (14% underweight, 14% obese); and 14% were not in medical homes.

In order to assess the financial impact of the changes made to the MHSU model, a cost-benefit analysis was performed contrasting the former “Weekend Provider” MHSU model with the “Weekday Student” MHSU model implemented by the project. This is shown in Table 1 (above) and Graph 5 (above inset). Under the “Weekend Provider” model, one screening event was performed per week, with an average of 10 patients screened. Since the per-event cost to UNHS was $89.20, the per-patient cost to UNHS was $8.92. Under the “Weekend Student” model, three screening events were conducted per week (a 200% increase over the previous model); also, each event averaged 13 patient screens (a 30% increase from earlier). Finally, under the new model, the event cost to UNHS was decreased to $59.89—a 33% reduction—while the per-patient cost to UNHS was decreased to $4.61—a 48.3% decrease in cost.

A total of six different student participants completed at least one volunteer shift at a MHSU screening event. All of these students were medical students, despite the myriad student groups approached for recruitment. Each student fully completed the “MHSU Student Participant Feedback Form; the tabulated results are visible in Table A (below, next page). Overall response was extremely positive in all measured categories, indicating a high level of satisfaction among student participants.

**Discussion**
Our first goal for the project was to “streamline the collection of data for both patients and clinic alike.” In regard to patient data, we successfully distributed patient screening results (via the “Results Form), as well as key medical education and preventive health materials ("What is High Blood Pressure”, etc.) to all 102 screened patients—a rate of 100%. Regarding collection of data for the clinic, our patients’ completed “Health Screening and Assessment Form” were not only collected for every patient screened, but an overwhelming majority qualified to be statistically analyzed in an anonymous fashion, with only a minimal attrition rate. Finally, the Excel spreadsheet with blinded patient data, all forms and patient education materials, and recruitment websites/spreadsheets remain fully operational and accessible to UNHS. Hence, our first goal was successfully met. We also clearly met our second stated goal of “increasing the frequency of mobile clinic screening events”. Whereas the previous screening model had the MHSU operating only on weekends, and completing on the average of one screen event per week, our newly established model successfully completed three screening events per week, on both weekdays and weekend days, for a total of eight events in a less than three-week period—an increase of 200%.

Finally, our third goal (“decrease the cost to UNHS” of mobile screening events) was also successfully reached, as evidenced by the comparative cost-benefit analysis. The savings to UNHS from elimination of the paid provider’s wages under the “Weekday Student” model was so great that even the increased costs of supplies for more events did not offset it. Overall, the project model showed a 33.2% percentage reduction in per-screening event cost, and a 48.3% percentage reduction in cost per patient—meaning that each patient costs about half as much to screen under implemented changes as they would have before. A simultaneous 30% percentage increase in number of patients screened means that, in the future, UNHS will be screening more patients at less cost. As compelling as these calculations already are, they cannot assess the additional qualitative improvements achieved by the acquisition of data by the clinic, as well as the distribution of tangible patient results and medical information to those individuals screened.

The statistical findings of our screening project serve as a “bonus addition” to its overall success. First, our data showed that the “average patient” screened at our MHSU events was normotensive, normoglycemic, obese,

<table>
<thead>
<tr>
<th>Feedback Question</th>
<th>Average Response (1-10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Community Impact</td>
<td>9.3</td>
</tr>
<tr>
<td>Likely to Help Again</td>
<td>9.5</td>
</tr>
<tr>
<td>Likely to Refer Others</td>
<td>9.5</td>
</tr>
<tr>
<td>Overall Experience</td>
<td>8.7</td>
</tr>
</tbody>
</table>

Table 2. Average responses to specific questions from the MHSU Student Participant Feedback Form. All student participants completed the form in its entirety.
and in a medical home. Though these results might lead one to believe that the current patient population is not as unhealthy as was previously assumed, it is important to note that screenings were done at community centers, to ensure a high level of “patient publicity”. It is possible that the population most likely to frequent community centers are those already aware of the benefits of physical activity and healthy behaviors — and more likely to be in better shape than the average. When we consider the percentages themselves, we find that 27.5% of screened individuals were hypertensive, 18% were hyperglycemic, and 44% were obese — even greater percentages than those reported in national and county studies. This shows clearly the continued need for preventive medical intervention in the Nashville area—an intervention that UNHS is attempting to provide through its clinics, and through the MHSU. Second, our data demonstrated that, as predicted, patients without medical homes do tend to suffer more greatly from uncontrolled chronic conditions that negatively affect quality of life. If an MHSU screening can connect these patients to a medical home like UNHS, these patients stand to reap significant improvements in their disease symptoms — making another strong case for continued improvement and expansion of this outreach. Perhaps most significantly, our data found that through its screenings, the MHSU was able to identify a fairly large number of “new positives” for each screened parameter. To reiterate, these “new positives” were individuals who screened high in a particular parameter, yet were clinically asymptomatic for a chronic disease, and had never been told that they were at risk by a medical provider. Specifically, 21.8% of hypertensive-screening individuals fell into this “new positive” category for their hypertension; this represents 5.8% of all individuals screened for blood pressure. Similarly, 25% of hyperglycemic-screening individuals (4.5% of all individuals screened for hyperglycemia) were “new positives”. The fact that the MHSU is actively detecting asymptomatic positives means that many patients with significant risk will get a chance to alleviate, and perhaps avoid altogether, the devastating effects of frank disease.

The pediatric data, however, may make the most compelling case for the need for preventative programs such as the MHSU. The fact that any children screened positive at all for such grave risk factors as hypertension or obesity at such a young age is cause for concern, and immediate intervention. If not brought under medical control, these children are extremely likely to suffer debilitating chronic illnesses and their detrimental effects, at a younger age than their adult counterparts. Conversely, these children can reap immeasurable benefits for the future if they are detected and treated — as some were by the MHSU.

With having met all of the other goals of the project, the final question addressed was that of sustainability. Since it is clear that the new model is financially feasible for UNHS, the major determinant of keeping the new MHSU model running was finding healthcare students to continue the screenings. Despite the relatively low number of student volunteers that participated during the project, there is great reason to believe that there will be enough student interest to keep the MHSU running under the “Weekday Student” model in the future. First, the response feedback from student participants was overwhelmingly positive — and the highest
overall responses fell in the categories of “I am likely to help again” and “I am likely to refer others to this project” (both 9.5 out of 10). This means that word-of-mouth about the MHSU project will continue to generate newly interested students, and that those who participate will probably return. Second, the extremely short, three-week time frame of active MHSU screening events fell into a perfect nadir of healthcare student availability; medical students at Vanderbilt and Meharry Medical Colleges were engrossed in beginning their academic years, while FNP summer students were completely tied up in end-of-course exams. Had the project run for a longer time frame, or at a different time in the year, more students would probably have participated. Third, the major coordinator for this project did not live in Nashville, and was (in a sense) “recruiting blind”; a local healthcare student with significant connections in the city, and an established school network from which to recruit volunteers, would probably be able to do so, much more successfully. Finally, the fact that UNHS receives multiple requests per year from students interested in volunteering in a meaningful community healthcare project means that student interest for projects such as these is high; once firmly established, the MHSU screening project will be a fantastic venue for these passionate students to contribute hands-on care to those in need.

Recommendations

Despite its successes, this project did encounter some challenges. The most significant issue raised during the course of the project was difficulty with acquiring a driver for the MHSU. Although weekday events were the only way in which to increase the number of outreaches performed (and were desired by UNHS), weekdays were the precise time when the fewest staff drivers were available to operate the unit. Many events needed to be restructured in order to continue screening without the mobile present, when it could not be onsite; and, as previously mentioned, one event was canceled altogether—a substantial loss in terms of outreach and data alike. A second problem was high frequency of confusion between screening sites and UNHS about services rendered by the MHSU, leading to disappointment for all parties. (This seemed to be a greater problem with events booked under the previous model than those scheduled specifically for the project.) For example, one event site desired full physicals to be performed for school-age children; however, the MHSU that day had only healthcare students staffing the event, who were not authorized to provide such comprehensive medical screening.

In order for this project to remain sustainable, it is strongly recommended that the clinic modify its policy on operation of the MHSU, since UNHS clinic staff have in-clinic roles on weekdays that are not easily adjusted. Failing to address this will mean that the MHSU remains relegated to its former once-weekly state, completely negating the increased efficacy shown by the project. One possible solution is that UNHS designate a staff member whose sole role is to drive the MHSU to scheduled events. Alternatively, UNHS could expand its pool of approved part-time staff drivers, so that one will likely be available at any time an event is scheduled. Perhaps most affordably, UNHS could have a “training day” for medical students who will be conducting MHSU screenings,
 instructing them in proper operation and care of the unit, and retain a record of approved “student operators”. In this way, the mobile can operate more flexibly, yet UNHS will still have accountability.

Secondly, it is recommended that the clinic create a standardized request form for sites to complete prior to the scheduled event, outlining exactly what services the site desires UNHS and the MHSU to provide. When care expectations were not met onsite, most community members expressed their disappointment by refusing any MHSU services at all—a communication barrier easily circumvented with a standardized form. Additionally, in the unlikely event of site dissatisfaction, UNHS will have a permanent record to show what was requested.

Finally, with its effectiveness established, it is highly recommended that the MHSU incorporate additional risk parameters into its screening, which this project did not have the time or resources to complete. Two possible examples include a fingerstick cholesterol screening for hyperlipidemia in adults, and additional self-report questions regarding asthma in children. These two parameters alone would add significant value to the already valuable protocol; according to the Robert Wood Johnson Foundation, 20% of adults ages 18-64 suffer from cholesterol disorders\(^{17}\), and a self-report question already exists on the Patient Data form enquiring about previous high cholesterol (due to its indication as a risk factor for diabetes). Similarly, asthma affects a shocking 30% of children ages 0-17. If the clinic can obtain point-of-care tools and protocols to add these high-impact services, the benefit to both adult and pediatric patients, as well as to the clinic, cannot be understated.

**Conclusion**

It is now clearer than ever that the MHSU is, and will continue to be, a proven and effective tool in the battle against chronic disease in Nashville. When given a more efficient, cost-effective, and targeted system of operation, the MHSU was not only able to increase its output at reduced cost, but was also able to generate reliable patient data—data that argues compellingly for its efficacy in delivering preventive care to a medically underserved population. Additionally, the simplicity, reproducibility, and cost-effectiveness of implemented changes ensure that this model—and its success—is sustainable for UNHS, for the foreseeable future.

Furthermore, multiple exciting possibilities for expanding this model are feasible for UNHS. Data generated both now and in the months to come will enable reports, studies, and grants to be completed by UNHS, that make a case for support and expansion of the MHSU from outside parties. As local healthcare students gain greater patient exposure in their preclinical years through this program, it is probable that a greater number will become committed to community health, and to decreasing the gap between needed and available primary care physicians. And it is likely that, with continued focus, the MHSU will contribute substantially to increased prevention of chronic disease in Nashville, leaving its community both happier and healthier.

---

\(^{17}\) [http://www.rwjf.org/content/dam/farm/reports/reports/2010/rwjf54583](http://www.rwjf.org/content/dam/farm/reports/reports/2010/rwjf54583)
Appendices

A. Patient Self-Report “Health Screening and Assessment Form”
B. Provider-completed “Patient Result Form”
C. Developed Patient Education Article, “What is Diabetes and How Can I Control It?”
D. Developed Patient Education Article (Spanish), “Que es La Presion Alta?”
E. Developed Patient Education Article, “How To Live a Healthier Lifestyle”
F. Categorical “Screening Script” for MHSU Screeners
G. List of Community Center Screening Events, By Zip Code
H. Sample Mobile Screening Event Flyer
I. Screenshots, Google Drive Interactive Student Signup Form
J. Short Form Advertisement for Healthcare Students
K. MHSU Student Participant Feedback Form

Appendix A. Patient Self-Report “Health Screening and Assessment Form”
# Health Screening and Assessment Form

**Appendix B. Provider-Completed “Patient Result Form”**

## Health Screening and Assessment Form

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender M F</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
<th>ZIP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone Number</th>
<th>Primary Language</th>
<th>Interpreter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Have you ever been told that you have high blood pressure? Y N
   a. If yes, are you on medication? Y N
   b. Do you take your medication? Y N How often?
   c. Did you take your medication today? Y N

2. What is your weight? ___
   Is this what your doctor wants you to weigh?

3. Do you smoke? Y N How long have you smoked? How many packs per day?
4. Have you ever been told that you have high blood sugar? Y N
   1. If yes, are you on medication? Y N
   2. Do you take your medication? Y N How often?
   3. Did you take your medication today? Y N
   4. When was the last time you were?

5. Diabetes Risk Factors (Check all that apply):
   a. Do you have a first-degree relative (parent, sibling, or child) with diabetes? Y N
   b. Do you exercise regularly? Y N
   c. Have you ever been told you had high cholesterol? Y N
   d. Are you overweight? Y N
   e. Are you taking a blood pressure medication? Y N
   f. (Woman) Do you have a history of having given birth to a baby with a birth weight of 9 pounds or more? Y N
   g. (Woman) Have you been told you had elevated blood pressure or diabetes in pregnancy? Y N

6. What is your ethnic background?
   - Asian
   - Black or African American
   - Caucasian
   - Hispanic or Latino
   - Other

## Access to Care and Utilization

7. Do you have a doctor/dentist? Y N
   a. What type of doctor/dentist?
   b. Have you seen your doctor/dentist in the last year? Y N

8. Have you used the Emergency Department within the last month? Y N
   1. If yes, how many times did you visit the ED?
   2. What was the reason for your visit?

## Consent for Medical Assessment & Release of Information

---

I hereby authorize the United Neighborhood Health Services student and/or staff member to complete the Demographics & Health Survey with the information that I provide to them.

---

I understand that this screening does not constitute medical treatment or a medical diagnosis and will seek medical attention if the reports of this screening prove to be abnormal.

---

I authorize the United Neighborhood Health Services student and/or staff member to complete the assessment by performing a glucose screening to evaluate your child's potential risk of diabetes. I understand that this screening does not constitute medical treatment or a medical diagnosis and will seek medical attention if the results of this screening prove to be abnormal.

---

I authorize the United Neighborhood Health Services student and/or staff member to complete the assessment by performing a blood pressure measurement to evaluate your child's potential risk for hypertension. I understand that this screening does not constitute medical treatment or a medical diagnosis and will seek medical attention if the results of this screening prove to be abnormal.

---

I authorize the United Neighborhood Health Services student and/or staff member to complete the assessment by performing a blood pressure measurement to evaluate your child's potential risk for hypertension. I understand that this screening does not constitute medical treatment or a medical diagnosis and will seek medical attention if the results of this screening prove to be abnormal.

---

Signature: __________ Date: __________

---

## Patient Summary

<table>
<thead>
<tr>
<th>Blood Pressure</th>
<th>Blood Glucose</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Diabetic Foot Screen**

Follow-up with your physician is recommended:

- [ ] Immediately
- [ ] Within ___ days/weeks
- [ ] Routine Well Follow-Up

**Lifestyle modifications recommended:**

- [ ] Reduce sugar
- [ ] Reduce fat
- [ ] Reduce sodium/carbohydrates
- [ ] Increase fiber
- [ ] Stop smoking
- [ ] Reduce stress
- [ ] Stress management
- [ ] Spiritual/emotional support

**Ask your physician about:**

- [ ] Diabetes
- [ ] Hypertension
- [ ] Weight Loss
- [ ] Asthma

**Notes:**

---
Appendix C. Developed Patient Education Article, “What Is Diabetes, And How Can I Control It?”

What Is Diabetes and How Can I Control It?

When you have diabetes, your body either doesn't make enough insulin or can't use its own insulin as well as it should, or both. This causes sugars to build up too high in your blood. Most of the food you eat is turned into glucose, or sugar, for your body to use for energy. Insulin is a hormone needed to convert sugar and other food into energy and to help glucose get into your body's cells.

What types of diabetes are there?
This disease has two main types: type 1 and type 2.
Type 2 is the most common. About 90 percent to 95 percent of Americans diagnosed with diabetes have type 2 diabetes. It most often develops in middle-aged and older adults. It's often linked with obesity and physical inactivity.

Type 2 diabetes develops when the body doesn't make enough insulin and doesn't efficiently use the insulin it makes (insulin resistance).

Type 1, or juvenile diabetes, usually starts early in life. It results from the body's failure to produce insulin. People with it must take insulin each day to regulate levels of blood glucose (sugar).

Am I at risk?
Diabetes is increasing. This is because more people are obese, don't get enough physical activity and are getting older. However, younger people are developing diabetes at an alarming rate. This is probably because obesity and lack of physical activity are increasing problems for this group, too.

People in several ethnic groups seem to be more likely to develop type 2 diabetes:
- Hispanics
- African Americans
- Native Americans
- Asians (especially South Asians)

How can I control my risk for heart disease and stroke?
Diabetes is a major risk factor for stroke and heart disease. That means it can be as serious as smoking, high blood cholesterol, high blood pressure, physical inactivity or obesity.

If you have diabetes, it's very important to have regular check-ups. Work closely with your healthcare provider to manage your diabetes and reduce any other risk factors:

- Control your weight and blood cholesterol with a low-saturated-fat, low-cholesterol diet.
- Be physically active for at least 30 minutes on most or all days of the week.
- If you drink alcohol, don't have more than one drink per day for women or two per day for men.

Appendix D. Developed Patient Education Article (Spanish), “Que es La Presion Alta?”
Appendix E. Developed Patient Education Article, “How To Live a Healthier Lifestyle”

How Can I Develop A Healthier Lifestyle?

There are many things that you can do to help yourself feel better and be healthier. The most important include: eating a well-balanced diet, maintaining a healthy weight, exercising regularly, and stopping unhealthy behaviors like smoking, excessive alcohol use, and drug use.

Developing A Well-Balanced Diet: Making A Healthy Eating Plan

A healthy eating plan gives your body the nutrients it needs every day while staying within your daily calorie goal for weight loss. A healthy eating plan will also lower your risk for heart disease and other health conditions.

A healthy eating plan:

- Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products
- Includes lean meats, poultry, fish, beans, eggs, and nuts
- Is low in saturated fats, trans fat, cholesterol, salt (sodium), and added sugars
- Controls portion sizes

Maintaining A Healthy Weight

To lose weight, most people need to reduce the number of calories they get from food and beverages (energy IN) and increase their physical activity (energy OUT).

A safe level of weight loss is 1-2 pounds per week. To do this, daily caloric intake should be reduced by 500 to 1,000 calories a week. In general:

- Eating plans that contain 1,000-1,200 calories each day will help most women lose weight safely.
- Eating plans that contain 1,200-1,600 calories each day are suitable for men and also may be appropriate for women who weigh 145 pounds or more or who exercise regularly.
- If you are overweight or obese, you should plan to begin reducing body weight by about 10 percent from what you weigh now. For example, if you weigh 200 pounds, a weight loss goal of 20 pounds is a good start.
- You can safely lose about 1 to 2 pounds per week for a period of 6 months; once you do this, your doctor can help you make a plan if you need to continue losing weight.

Exercising Regularly to Improve Your Health

Everyone is different in how much physical activity they need. Here are some guidelines to follow:

To maintain your weight: Work your way up to 150 minutes of moderate-intensity aerobic activity, 75 minutes of vigorous-intensity aerobic activity, or an equivalent mix of the two each week. Strong scientific evidence shows that physical activity can help you maintain your weight over time.

To lose weight and keep it off: You will need to increase your physical activity; also adjust your diet and reduce the amount of calories you’re eating and drinking, to help you lose weight more quickly. Getting to and staying at a healthy weight requires both regular physical activity and a healthy eating plan.

What do moderate- and vigorous-intensity mean?
Appendix G. List of Community Center Screening Events, By Zip Code

37115

- **Thursday, August 1st, 2013, 10 a.m.-2 p.m.,** Madison Community Center (510 N. Dupont Ave, Madison, TN 37115)*

37206

- **Wednesday, July 24th, 2013, 9 a.m.-1 p.m.,** Kirkpatrick Community Center (620 S. 9th Street, Nashville, TN 37206)
- **Friday, August 2nd, 2013, 9 a.m.-12 p.m.,** Martha O'Bryan Center (711 S. 7th Street, Nashville, Tennessee 37206)*
- **Monday, August 5th, 2013, 8 a.m.-4 p.m.,** East Park Regional Community Center (600 Woodland Street, Nashville, TN 37206)

37207

- **Saturday, July 27th, 2013, 10 a.m.-2 p.m.,** Glen Rose Elementary School (322 Cleveland Street, Nashville, TN 37207)
- **Tuesday, July 30th, 2013, 10 a.m.-2 p.m.,** Parkwood Community Center (3220 Vailview Drive, Nashville, TN 37207)
- **Wednesday, July 31st, 2013, 1-4 p.m.,** McFerrin Community Center (315 Berry Street, Nashville, TN 37207)

37209

- **Saturday, August 3rd, 2013, 10 a.m.-2 p.m.,** TSU Campus (2901 John A Merritt Blvd, Nashville, TN 37209)*

37216

- **Saturday, August 3rd, 2013, 2-5 p.m.,** Maplewood High School (401 Walton Lane, Nashville, TN 37216)*

* cancelled--lack of MHSU  *added to project by request of screening site *booked prior to project; added w/ new protocol

Appendix H. Sample Mobile Screening Event Flyer
FREE HEALTHCARE SCREENING DAY!!

Each free screening includes:

- Blood pressure check
- Blood sugar check
- Body Mass Index (weight for height) measurement
- Tips and information on healthy lifestyles and nutrition
- A copy of your results to take home

Come and receive a free health check on United Neighborhood Health Services’ Mobile Healthcare Unit, given by local medical students, residents and nurse practitioners.

**When:** Tuesday, July 30th, 2013, 10 am - 2 pm

**Where:** Parwood Community Center (parking lot)
3220 Mailview Drive, Nashville, TN 37227

Appendix I. Screenshots, Google Drive Interactive Student Signup Form
United Neighborhood Health Services Health Screen Events – July/August 2013

Hello! Thank you for your license and willingness to participate in our free healthcare screenings for the Nashville community. You will be seeing with United Neighborhood Health Services Mobile Health Unit at various community centers in the area. We will ask you to provide your blood pressure and diabetes screens, collection certain demographics data, and directly counseling centers to share those results, and education on where to more patient health. We will be providing forms in both English and Spanish for any Latino patients we may screen. This is a great way to increase your civic duties, get greater exposure to patients, and provide much-needed medical care to some of Nashville’s most underserved and at-risk populations.

Please plan to fill in pre-screenings prior to the event to complete a self-guiding number of our forms to collect patient information, as well as suggestions on how and when to educate patients to various EMR, as per our BPA. We ask that you please fill out a quick feedback form after our screening day procedures, as that we can leave a better experience for both staff and patients in the future.

We welcome your suggestions!

Locations:

- Saturday, July 14th, 2013, 9 a.m. - 1 p.m., L discussion Community Center (18th South and James St.), Nashville, TN
- Thursday, July 19th, 2013, 9 a.m. - 1 p.m., Glenbrook Elementary School
- Tuesday, July 23rd, 2013, 9 a.m. - 1 p.m., Ferebee Community Center (1230 St. Louis St.), Nashville, TN
- Wednesday, July 24th, 2013, 9 a.m. - 1 p.m., Jefferson Community Center (1615 Berry St.), Nashville, TN
- Thursday, August 1st, 2013, 9 a.m. - 1 p.m., North Building Community Center (540 North St.), Nashville, TN
- Saturday, August 24th, 2013, 9 a.m. - 1 p.m., Nashville High School
- Saturday, August 24th, 2013, 9 a.m. - 1 p.m., Tennessee State University campus
- Monday, August 26th, 2013, 9 a.m. - 1 p.m., East Park Regional Community Center (2200 East Park St.), Nashville, TN

Qualifications: Willing hands and a heart for families.

At your service and business casual dress with white coat/collar coat. We want to be presentable as health care professionals to all patients. If you have your own stethoscope and/or sphygmomanometer cuff, please bring them.

We would like to have as many of those patients per event to ensure the best for all. If you are present, please fill out the form below. These events will be an event community on-site area for many local healthcare programs, so if you
<table>
<thead>
<tr>
<th>Timestamp</th>
<th>Name</th>
<th>Institution/School</th>
<th>Email</th>
<th>Comfort level taking blood pressures?</th>
<th>Comfort level taking blood sugars?</th>
<th>Comfort level in transitioning from health screening to explaining results/patient education?</th>
<th>Untitled Question</th>
<th>Can you speak Spanish?</th>
<th>I need proof of my hours volunteered for my institution</th>
<th>I can help you</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/11/2013 17:57:55</td>
<td>Drexel University College of Medicine</td>
<td></td>
<td><a href="mailto:contact.safety@gmail.com">contact.safety@gmail.com</a></td>
<td>Very Comfortable</td>
<td>Very Comfortable</td>
<td>Very Comfortable</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/23/2013 15:01:50</td>
<td>Medical College of Georgia University of Illinois College of Medicine/ PCLP Scholar</td>
<td></td>
<td><a href="mailto:zhangwen8989@gmail.com">zhangwen8989@gmail.com</a></td>
<td>Very Comfortable</td>
<td>Very Comfortable</td>
<td>Very Comfortable</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/23/2013 15:23:09</td>
<td>Ninf Primary care leadership program Pacific Northwest University</td>
<td></td>
<td>Zoho accounts.</td>
<td>Have done a few</td>
<td>Have done a few</td>
<td>Occasionally have done this</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/23/2013 15:23:55</td>
<td>Ninf Primary care leadership program Pacific Northwest University</td>
<td></td>
<td><a href="mailto:art@zoho.com">art@zoho.com</a></td>
<td>Very Comfortable</td>
<td>Have done a few</td>
<td>Very Comfortable</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix J. Short Form Advertisement for Healthcare Students

Medical Student Seeking YOUR HELP With
Community Health Screens!!

Are you:

- Interested in gaining more hands-on experience with patients?
- Passionate about healthcare for underserved medical populations?
- Eager to gain community service hours with a local healthcare clinic?
- Ready to help out a fellow medical student with a public health project?

You’re in luck!

United Neighborhood Health Services is seeking medical student volunteers to help screen patients for diabetes, hypertension, and chronic Emergency Department overuse on its Mobile Health Screen Unit. Students will conduct all aspects of the patient encounter, including history taking, blood pressure check, glucose check, and relevant patient education. Multiple short shifts (minimum 4 hours) available. Service with this project fulfills mandatory volunteer hour requirements of many programs; documentation of time given provided. Sign up today at:

tinyurl.com/unshshealthscreens

Questions? Comments? Email Rachel at:

WE HOPE TO SEE YOU THERE! THANKS!
Appendix K. MHSU Student Participant Feedback Form

Mobile Health Screen Student Participant Feedback Form

1. I am a:
   ☐ medical student  ☐ medical resident  ☐ nursing student
   ☐ NP student
   ☐ RN  ☐ BSN  ☐ Other (specify):

2. I participated in the Mobile Health Screen event held
   on: ________________________ at:

3. Overall, I would rate my experience volunteering with the Mobile Health Screen
   Unit as:

   1-----------------2-----------------3-----------------4-----------------5-----------------6-----------------7-----------------8-----------------9-----------------10
   (not at all enjoyable)  (neutral)  (very enjoyable)

4. The day went very much as was described to me when I signed up.

   1-----------------2-----------------3-----------------4-----------------5-----------------6-----------------7-----------------8-----------------9-----------------10
   (strongly disagree)  (neither agree)  (strongly agree)