



FINAL EVALUATION REPORT

King's Daughter's Medical Center

April 2014

Corporation for
NATIONAL &
COMMUNITY
SERVICE 

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Acknowledgements

This report was developed under grant #10SIHKY001

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Executive Summary

Background

Rural Eastern Kentucky counties have high poverty, low education, and low health insurance coverage, as well as a short supply of healthcare providers. These factors contribute to significant barriers to healthcare access in this area, which are associated with poor health outcomes, including obesity, smoking, physical inactivity, poor nutrition, and ultimately cardiovascular disease.

The Mobile Health Services for Rural Kentucky project was a program designed to reduce premature death due to heart disease and other preventable diseases among residents of eight rural Eastern Kentucky counties within the Kings Daughters Medical Center catchment area (Elliott, Floyd, Johnson, Lewis, Magoffin, Martin, Morgan and Rowan). In order to accomplish this, the program aimed to increase access to health care, increase knowledge of controllable risk factors for heart disease, reduce unhealthy behaviors, and improve health outcomes. Activities planned included implementing a mobile service to provide free health screenings and education to the target population, provide fee-based cardiac testing for individuals found to be at-risk during screenings, and refer individuals screened and tested who need additional care to physicians for follow-up care.

Methods

Data collection for the Mobile Health Services for Rural Kentucky project began with development of an evaluation plan and obtaining Internal Review Board approval in April, 2013. Implementation evaluation data were collected from April, 2013 through September, 2013, when KHFI funding was ended. Impact evaluation was assessed through tracking referrals and it covers the time period of six months following the implementation period, from October, 2013 through March, 2014. Baseline data were collected for all participants screened from April, 2013 to September, 2013 and included an intake form before they received screening tests. Follow-up data were collected on only those individuals referred for follow-up care using a phone survey six months after they were screened, from October, 2013 to March, 2014.

Results—Implementation

During the implementation evaluation period, 50 heart and vascular screening days were held in 29 unique screening sites throughout the eight target counties. Screening sites included grocery stores, pharmacies, and churches. During these events, 678 unique individuals were screened. Of the individuals screened, 92% were given information on heart health, tobacco cessation, and stroke. Of the 678 individuals screened, 345 (51%) were found to have elevated levels of either blood pressure (systolic ≥ 140 or diastolic ≥ 90), elevated total cholesterol levels (240 or above), or elevated blood sugar (greater than 126 mg/dL). Of the 678 individuals screened, 122 (18%) were marked that follow-up care was needed based on screening results. However, an accurate number of those needing follow-up care is not available due to incomplete data collection during screening and from cardiologists who also took part in making decisions about the need for follow-up care.

Also during the implementation evaluation period, 1,091 people received a cardiac test from the Mobile Health Services for Rural Kentucky project. Of these individuals, program staff found that 57 (5%) had been previously screened on the mobile unit, as a part of the Mobile Health Services for Rural Kentucky project. This was found by program staff manually looking up each individual screened in the cardiac testing database.

Results—Impact

During the impact evaluation period, 25 individuals who were screened and referred for follow-up services were contacted via phone for completion of the follow-up survey by program staff. Of these, 8% said they saw a healthcare provider, as recommended. These two individuals were already on medication when they saw a provider, so were not recommended any further actions. These two individuals did indicate they would continue seeking care from the primary care physician they were referred to during the screening.

Challenges to completing the evaluation plan included no or limited data availability due to the decision to end KHFI funding. Implementation data that was not collected includes information on the strength of the partnerships and perceptions of staff. Complete information on referrals made during screenings was also not collected by program staff. Impact data collected in limited number includes the follow-up survey. Medical record and outside provider data was not collected to provide follow-up data on health outcomes, such as blood pressure, blood sugar, and cholesterol.

Discussion

The Mobile Health Services for Rural Kentucky project was successful in promoting the screening and cardiac testing events through advertising in local newspapers and flyers placed in local businesses and public venues. The project also worked with partners to establish successful locations to hold screening and cardiac testing events with the mobile unit. However, the time period for data collection of implementation and impact was truncated due to the program's decision to end KHFI funding. The small number of people reached for follow-up reduces the ability to make inferences regarding program effectiveness in ensuring that individuals with abnormal screening results received recommended follow-up care.

Recommendations

Recommendations for other programs interested in conducting a health screening and cardiac testing mobile unit project include that programs work with IT departments to establish procedures to electronically connect screening data to medical records. This will decrease the burden on staff to manually track referral information of screened individuals, as well as assist in monitoring information on screened individuals.

Background

Poor Health in Rural Eastern Kentucky

Appalachian counties in Eastern Kentucky are high in poverty, low in educational attainment and have poor health outcomes. Rural isolation, lack of medical providers, and financial burden contribute to the problem of healthcare access in these counties. Rural areas in Kentucky often have a short supply of healthcare providers, and this can lead to low detection and treatment of chronic diseases.

Socioeconomic issues of the eight rural Eastern Kentucky counties within the Kings Daughters Medical Center (KDMC) area (Elliott, Floyd, Johnson, Lewis, Magoffin, Martin, Morgan and Rowan counties) are presented with the selected indicators in Table 1. Median household income ranges from \$22,097 (Elliott) to \$31,604 (Rowan), both lower than Kentucky and the nation. The poverty rate in the selected counties ranges from 22% (Johnson) to 37% (Elliott), both higher than the state and nation. All eight counties have lower rates of high school graduation or completing a GED than the state and nation. The percentage of adults under age 65 who are lacking healthcare coverage is higher in the selected counties than the state and nation, with a range of 23% (Johnson, Magoffin) to 27% (Morgan).

Table 1 Socioeconomic Indicators of Target Counties

County	Population	< High school grad	Median Household Income	Poverty Level	Population Density (pp/mile ²)	Unemployed	Uninsured Adults (<65)
Elliott	7,707	30%	\$22,097	37%	34	12%	26%
Floyd	39,207	31%	\$27,907	28%	100	10%	25%
Johnson	23,396	32%	\$30,820	22%	89	10%	23%
Lewis	13,878	34%	\$28,376	28%	29	14%	26%
Magoffin	13,216	34%	\$22,779	30%	43	16%	23%
Martin	12,751	35%	\$25,173	33%	56	10%	24%
Morgan	13,943	31%	\$30,229	24%	37	12%	27%
Rowan	23,582	23%	\$31,604	30%	83	9%	25%
<i>Kentucky</i>	<i>4,369,356</i>	<i>19%</i>	<i>\$41,576</i>	<i>18%</i>	<i>110</i>	<i>10%</i>	<i>18%</i>
<i>U.S.</i>	<i>311,591,917</i>	<i>15%</i>	<i>\$51,914</i>	<i>14%</i>	<i>87</i>	<i>9%</i>	<i>16%</i>

Source: U.S. Census Bureau, 2011 (population), 2006-2010 (education, income, and poverty), 2010 (density), 2009 (insurance) and Bureau of Labor Statistics, 2011 (unemployment).

Eastern Kentucky counties have high risk factors for cardiovascular disease, as well as a high death rate due to cardiovascular disease. Many of the KDMC counties have higher rates than state and national rates for adult obesity, smoking, lack of physical activity, and cardiovascular disease deaths (Table 2).

Table 2 Health Indicators of Adults for Target Counties Compared to Kentucky and U.S.

County	Obesity (%)	Smoking rate (%)	Lack of Physical Activity (%)	Heart Disease Deaths (/ 100,000)
Elliott	44	28	41	139
Floyd	37	26	40	291
Johnson	41	18	33	298
Lewis	30	38	31	232
Magoffin	29	35	44	207
Martin	42	27	41	359
Morgan	34	39	33	216
Rowan	39	24	30	222
<i>Kentucky</i>	<i>27</i>	<i>29</i>	<i>31</i>	<i>224</i>
<i>U.S.</i>	<i>27</i>	<i>18</i>	<i>25</i>	<i>251</i>

Source: Kentucky data: kentuckyhealth facts.org, accessed 10/15/12. U.S. behavioral data: cdc.gov/brfss, accessed 10/15/12. U.S. heart disease data: Morbidity and Mortality 2012 Chartbook nhlbi.nih.gov, accessed 10/15/12. Behavioral data are from combined years 2008-2010 for counties and state and from 2009 for U.S. Heart Disease data are from combined years: 2003 - 2007 for counties and from 2007 for U.S.

Overview of Project

In 2011, KDMC received funding from the Kentucky Healthy Futures Initiative (KHFI) to implement the Mobile Health Services for Rural Kentucky project. This project works to decrease premature death due to heart disease and other preventable diseases in the eight rural Eastern Kentucky counties of the KDMC area: Elliott, Floyd, Johnson, Lewis, Magoffin, Martin, Morgan and Rowan. The goal of this project is to reduce the risk of heart disease through screening, cardiac testing, education, and referral to physicians. The target population of this project is adults living in the eight counties, which are areas of high poverty, low insurance, and high risk factors for cardiovascular disease.

Prior research provides evidence that mobile health care can be successful in providing health care services to rural populations. Findings show that mobile health clinics can be an alternative access to health care for medically underserved populations (Oriol, 2009), (Edgerley, 2007), (Diaz-Perez MJ, 2004).

Earlier research provides a preliminary level of evidence that mobile health care can increase healthcare access, as well as improve health outcomes for participants. Individuals who visited a mobile health unit showed increased breast and cervical cancer screenings and influenza, pneumonia, and tetanus immunization rates. These participants also showed decreased emergency department use (Alexy BB, 1998).

The Mobile Health Services for Rural Kentucky project brings cardiologists, diagnostic services and free preventive health screenings into medically underserved counties in the KDMC catchment area. Individuals with heart disease and diabetes are identified through screenings, and those with high risk factors are assisted with connecting with either a local family practitioner or a cardiologist, and given diagnostic testing close to home, if needed. The project is operated on a mobile unit, and fixed locations for the cardiologist have been established in selected counties over the project period.

Previously, KDMC provided mobile health services to selected counties using an older mobile van. A donation from a local Ashland foundation provided funding to cover the cost of a new mobile unit and KHFI funding has enabled KDMC's current mobile health care work to grow by providing funds for equipment for the unit. With these resources, as well as staff and volunteers from KDMC, the Mobile Health Services for Rural Kentucky project was able to expand farther into Eastern Kentucky to provide access to diagnostic and cardiology services for the eight target counties' residents.

The overarching goal of the Mobile Health Services for Rural Kentucky project is to reduce premature death due to heart disease and other preventable diseases among the target population. The program's objectives to accomplish this goal are to 1) increase access to health care; 2) increase knowledge of controllable risk factors for heart disease; 3) reduce unhealthy behaviors, such as smoking, physical inactivity, and lack of fruit and vegetable consumption; and 4) improve health outcomes, including decreases in high blood pressure, blood sugar, and cholesterol.

The activities of the Mobile Health Services for Rural Kentucky project that were planned to reach the objectives above include the following strategies:

1. Implement a mobile service to provide free health screenings to the target population in eight counties and provide education on controllable risk factors for heart disease.
2. Provide fee-based cardiac testing for individuals found to be at-risk during screenings.
3. Refer individuals screened and tested who need additional care to physicians.

Screenings

After production delays outfitting the mobile units, the first step of the project was holding screening events. The project proposed conducting at least one screening event in each of the eight target counties each month. It was planned that project staff would contact partners, such as pharmacies, and schedule to have the mobile health unit in the parking lot for screenings. Screenings would be advertised in the local newspapers and through the placement of flyers. Screenings would be free and open to anyone age 18 and older. At each screening, participants would fill out a screening form on their own or with help from KDMC staff, if needed. Screenings would include total cholesterol, random blood sugar, blood pressure, blood oxygen, and electrocardiogram (EKG) test. Results of the screenings would be delivered to the nearest KDMC cardiologist for review.

Education on Risk Factors

Screened participants would be given health education during the screening process, based on their risk factors and screening results. KDMC staff would provide each individual with written information that pertained to their specific heart disease risk factors. The health education provided would include:

- Tobacco cessation
- Physical activity
- Nutrition

- Cancer screening (gender specific)
- Heart disease
- Stroke
- Diabetes

Cardiac Testing

Another piece of the planned project was to provide cardiac testing on the mobile health unit. Project staff would schedule days for the mobile unit to specifically provide cardiac testing in four of the target counties, twice per month. Individuals who needed cardiac testing would be referred to the mobile unit by their health care provider. Cardiac testing would include electrocardiography, echocardiography, ultrasound, Holter (ambulatory electrocardiography device) monitoring and stress testing. The mobile health unit would include a treadmill suite to allow for stress testing.

Referrals

The project also planned to include a component to refer at-risk individuals to health care providers for further care. First, individuals with abnormal results from the screening who need further care would receive assistance from KDMC staff to locate the appropriate provider for the follow-care they need and KDMC staff would send a follow-up letter reminding individuals to share their results with their healthcare provider. Second, for those needing assistance, KDMC staff would help schedule appointments. Finally, screening results would also be provided to a KDMC cardiologist for review and recommendations, such as follow up tests, appointments for cardiology or even referral to primary care provider.

Timeline

The Mobile Health Services for Rural Kentucky project began with funding from KHFI in October, 2011. However, the evaluation plan was not fully developed and approved until March, 2013. Internal Review Board (IRB) approval for evaluating the project occurred in February, 2013. With the approval of the evaluation plan and IRB, revised data collection forms were in place in April, 2013. Therefore, implementation evaluation covers the time period from April, 2013 to September, 2013, when KHFI funding was ended. Impact evaluation covers the time period of six months following the implementation period, from October, 2013 to March, 2014.

Methods

During year one of the evaluation of the Mobile Health Services for Rural Kentucky project, a preliminary level of evidence was expected to be attained because the program was in an early implementation stage. The evaluation of the implementation for the project was designed to document and monitor the processes involved with conducting activities. Data collection for this part of the evaluation includes collecting information on screenings held, individuals screened, and cardiac testing events and participants.

The impact evaluation for the Mobile Health Services for Rural Kentucky project was designed to collect data to assess the initial effectiveness of the project. This includes data collection at the screenings and through follow-up that occurred six months after screening for those individuals who are referred based on results.

Implementation and impact questions designed to help focus the evaluation of the project are shown below. These questions were established in the subgrantee evaluation plan approved in March, 2013. However, because implementation and impact data collection was a short period (six month each), some evaluation questions cannot be answered with available information.

Implementation Questions

1. Was Mobile Health Services for Rural Kentucky implemented as planned?
 - a. How many community screening events were implemented and how many people received these services?
 - b. How many people received education materials on controllable risk factors for heart disease?
 - c. How many people received cardiac tests?
2. How many individuals screened were found to be at-risk for coronary heart disease?
3. Did those needing follow up care receive a referral to a physician?
 - a. How many patients were referred?
4. Is the Community Advisory Committee building and maintaining partnerships to help this project succeed?
5. What factors contributed to successful program participation by individuals?
6. What barriers prevented successful program participation by individuals?

Impact Questions

- a. Confirmatory
 1. Did access to healthcare increase for individuals screened who were referred?
 - a. Did referred individuals keep appointments they were referred to have?
 - b. Were the reasons that referrals were made addressed during follow-up appointments for referred individuals?
 - c. Did the referred individual take any action based on follow-up recommendations?
 - d. Did the number of people with a primary care physician increase?
 2. Did knowledge of risk factors for heart disease increase among individuals screened who were referred?
 3. Did unhealthy behaviors decrease for individuals screened who were referred?
- b. Exploratory
 1. Did healthy outcomes increase for individuals screened who were referred?

- a. Did blood pressure, blood sugar, cholesterol and EKG tests improve for referred individuals?
2. Did hospital admissions decrease for referred individuals?
 - a. Did cardiac hospital admissions decrease for referred individuals?
 - b. Did hospital visits for non-emergency care decrease for individuals who were referred?

The data collection methods used for the project are shown in Table 3. Baseline data was collected for all participants screened from April, 2013 to September, 2013 with a screening intake form before they received screening tests. This data was filled out by hand by the individual screened, or with assistance from the program staff or volunteers, if needed. These forms were sent to the evaluators and entered into an Access database. The program staff kept a recorded list of those individuals who were referred for follow-up care, based on screening results, and used this list to collect follow-up data. Follow-up data was collected using a phone survey six months after referred individuals were screened, from October, 2013 to March, 2014.

Table 3: Data collection methods

Method	Sample	Purpose	How it was collected	# of respondents
Screening Intake Form	All patients screened	To get baseline and demographic data on screened individuals	Given by Mobile Health Unit staff/volunteers at time of screening (from April, 2013 to September, 2013)	678
Follow-up survey	Individuals referred based on screening results	To identify if referred individuals received needed follow-up care; to identify if patients' outcomes improved	Collected by project staff via phone calls 6 months after screening (from October, 2013 to March, 2014)	25

Changes from Evaluation Plan

The evaluation plan stated that the follow-up survey would be conducted by phone, email or a mail, depending on the individual's preference indicated on the screening intake form. However, errors in addresses and people moving made it necessary to conduct follow-up surveys via phone only.

The evaluation plan also stated that follow-up data would be collected through KDMC medical records, for those referred to KDMC physicians, and eventually contacts made with outside providers. However, medical record data was not readily available for project staff. Staff would need to get access to medical records, which they did not currently have. Conversations between the evaluation contractors, staff and KDMC IT took place during the early part of year one, but KDMC changes and the decision to not move forward with KHFI funding prevented further exploration into medical record access.

Other changes in the evaluation of the project took place because of organizational changes and the ending of project participation, as described above. Funding ended for the evaluation contractor in September, 2013. Therefore, the focus group with project staff did not take place at the end of year one, as planned. Also, the planned partnership survey at the end of year one to assess if partnership helped build and strengthen the project did not take place.

Results: Project Implementation

Screenings

The implementation evaluation period for the Mobile Health Services for Rural Kentucky project began in April, 2013. Screening data collection began at this time and continued through September, 2013. During this time period, 50 heart and vascular screening days were held in 29 unique screening sites throughout the eight target counties. Screening sites included grocery stores, pharmacies, and churches. During these events, 678 unique individuals were screened. Of these, 33% were male and 67% were female. Most individuals were between the ages of 40 and 64 years (59%) and were white/Caucasian (99%). Data on income and payment type shows that many screened individuals did not answer the income or payment type questions (36% and 21%, respectively). Of those individuals who did answer the income question on the screening intake form, 51% are above 200% of the federal poverty level (FPL), followed by 18% who are between 101% and 150% of the FPL. Most individuals had private insurance (54%), followed by 25% who had Medicare and 17% who did not have any insurance (self-pay).

Individuals who were screened were given educational information and program staff discussed the information at that time. Of the 678 individuals screened, 92% were given information on heart health, tobacco cessation, and stroke, 91% were educated on diabetes, 7% were educated on physical activity, and 5% were provided information on nutrition. Educational bags were given to a small number of individuals screened (2%).

Of the 678 individuals screened, 51% had elevated levels of either blood pressure (systolic ≥ 140 or diastolic ≥ 90), cholesterol (240 or above), or blood sugar (greater than 126 mg/dL). Following is a breakdown of the number and percent of screened individuals who had elevated blood pressure, cholesterol, or blood sugar.

1. 38% (258/678) had high blood pressure
2. 17% (116/678) had high cholesterol
3. 9% (64/678) had high blood sugar

Of the 678 individuals screened, program staff indicated that 18% (n=122) needed follow-up care. However, information on referrals made for these individuals is limited due to incomplete data. The revised screening in-take form included space for program staff to indicate if a follow-up appointment was made or if a referral was made to a doctor or other service, but this part of the form was not filled out by the program staff or volunteers during screenings. The evaluators began having discussions with the program administrator about this issue, but these discussions were not completed due to the ending of KHFI and evaluation funding. Further, the need for follow-up care at times was decided by a cardiologist after review of screening results. These decisions are not included in the screening data. Therefore, an accurate number of screened individuals who needed follow-up care is not available.

Cardiac Testing

Implementation data collection for cardiac testing also began in April, 2013 and continued through September, 2013. During this time period, 1,091 people received a cardiac test from the Mobile Health Services for Rural Kentucky project. Of these people tested, 44% were male and 54% were female. Similar to those screened, the majority of individuals tested were between the ages of 40 and 64 years (49%) and most were white/Caucasian (96%). Most individuals receiving cardiac testing had private insurance (48%), followed by 33% who were covered by Medicare. Income data was not available from the cardiac testing data.

Of the 1,091 people who received cardiac tests during the time period, program staff found that 55 (5%) had been screened as a part of the Mobile Health Services for Rural Kentucky project. This data was collected by program staff looking up each individual screened in a database provided from the cardiac testing department at KDMC. Program staff did not have direct access to KDMC medical records and were not able to identify a specific referral source for those patients receiving cardiac testing. Further, the cardiac testing database included services not limited to cardiac testing, such as surgery and specialist consultation. The data available to program staff was not categorized by services received. Instead notes were made in the database to identify what service was received, which was not always clear. The program evaluators and program staff met with the staff from the KDMC IT department to discuss getting access to KDMC medical records for more complete data availability, as well as electronic linkage of screening data medical records, including cardiac testing data. Progress was made with the IT group; plans were made to build a "department" for the Mobile Health Services for Rural Kentucky project that would enable program staff to enter all information from individuals screened that was collected with the new screening in-take form into a database within the KDMC medical records. The

evaluators shared a listing of data elements needed, and the IT group started work on the “department” in May, 2013. However, this work was halted when IT revealed that a social security number or medical record number was needed in order to enter a new patient record in the KDMC medical record system. Screened individuals were not asked to provide social security numbers as a part of the project.

Results: Project Outcomes and Impact

The impact evaluation period for the Mobile Health Services for Rural Kentucky project began with follow-up data collection on individuals who were screened and referred. This data collection began in October, 2013 and continued through March, 2014. Twenty-five individuals who were screened and referred for follow-up services were contacted via phone for completion of the follow-up survey by program staff. Of these, 8% said they saw a healthcare provider, as recommended. These two individuals were already on medication when they saw a provider, so were not recommended to start any new medication, nor were they recommended to see a specialist. The two individuals did indicate that they would continue taking medication after seeing the healthcare provider. Also, the individuals stated they plan to continue seeking care from the primary care physician they saw based on the recommendation they received during the screening.

Follow-up data is not available from KDMC medical records or outside providers, as planned in the evaluation plan. Work was started on medical record access for program staff and a specific “department” for entering screening data, so that screening data would be linked to all medical records in the KDMC system. This was not completed due to reasons described above. Contacting outside providers was planned as a “next step” in follow-up data collection, and the ending of KHFI funds prevented this from taking place.

Discussion

Results from the implementation evaluation of the Mobile Health Services for Rural Kentucky project show that screening events and individuals screened were implemented as planned. During the six month implementation data collection time period, 678 individuals were screened and most were provided with educational information that promoted heart health, tobacco cessation, and stroke prevention. During the time period, 1,091 people received cardiac tests and 57 of those tested had been screened through the project.

The Mobile Health Services for Rural Kentucky project was successful in promoting the screening and cardiac testing events through advertising in local newspapers and flyers placed in local businesses and public venues. The project also worked with partners to establish successful locations to hold screening and cardiac testing events with the mobile unit.

Data collected during screenings showed that 122 people were referred to have follow-up care based on screening results. However, detailed data regarding referrals made for follow-up appointments is not complete. Data collection forms were designed to collect information on the type of follow-care recommended based on screening results, but the information on the forms was not complete.

The time period for data collection of implementation and impact was truncated due to the program's decision to end KHFI funding. Follow-up data includes 25 individuals who completed screening and received referrals. This small number reduces the ability to make inferences regarding program effectiveness.

Recommendations

Based on the results of the evaluation of the Mobile Health Services for Rural Kentucky project, recommendations can be made for other programs interested in conducting a health screening and cardiac testing mobile unit project.

Engaging with partners to establish a variety of locations for the mobile unit to be located for the screening and cardiac testing events can be a useful way to reach many people in different areas where healthcare providers are not available. This program was quite successful in engaging local populations and providing screening.

The ability to confirm that referrals for follow-up care from screening are completed is a major challenge for programs such as the program that is the subject of this report. With the advent of Electronic Medical Records (EMR) it is theoretically possible to efficiently track individuals screened and capture referrals. However, the challenges of working with EMR systems are considerable and it is recommended that programs work with IT departments to establish procedures to electronically connect screening data to medical records. This will decrease the burden on staff to manually track referral information of screened individuals, as well as assist in monitoring information on screened individuals.

Bibliography

Alexy BB, E. C. (1998). Rural mobile health unit: outcomes. *Public Health Nursing*, 15 (1), 3-11.

Diaz-Perez MJ, F. T. (2004). A program to improve access to health care among Mexican immigrants in rural Colorado. *J Rural Health*, 20 (3), 258-64.

Edgerley, L. E.-S. (2007). Use of community mobile health van to increase early access to prenatal care. *Maternal and Child Health Journal*, 11 (3), 235-9.

Oriol, N. C. (2009). Calculating the return on investment of mobile healthcare. *BMC Medicine*, 7(27); electronic version: <http://www.biomedcentral.com/1741-7015/7/27>.

Appendix: Implementation and Impact Evaluation Tables

Implementation Evaluation Questions	Indicator(s)	Data (include quantitative & qualitative data as appropriate)	Explanation/context (e.g., is this more or less than expected? How is it significant? Were there issues with data availability, quality or completeness?)
<p>1. Was Mobile Health Services for Rural Kentucky implemented as planned?</p> <p>a. How many screening and screening events were implemented and how many people received these services?</p> <p>b. How many people received education materials on controllable risk factors for heart disease?</p> <p>c. How many people received cardiac tests?</p>	<ol style="list-style-type: none"> 1. # of screening days that occurred in each target county 2. # of unique screening locations 3. # of people screened 4. # people provided health and risk reduction education <ol style="list-style-type: none"> a. # of people who received education: Heart b. # of people who received education: Tobacco c. # of people who received education: Stroke d. # of people who received education: Diabetes e. # of people who received education: Physical Activity f. # of people who received education: Nutrition g. # of people who received education: Other 5. # of people receiving cardiac testing <ol style="list-style-type: none"> a. Of those who were referred from a screening on the mobile unit? b. Of those who were referred from other providers? 	<ol style="list-style-type: none"> 1. 50 2. 29 3. 678 4. # provided education <ol style="list-style-type: none"> a. 622 (Heart) b. 622 (Tobacco) c. 621 (Stroke) d. 618 (Diabetes) e. 47 (Physical Activity) f. 46 (Nutrition) g. 11 (Other) 5. 1,091 <ol style="list-style-type: none"> a. 57 b. Data not collected 	<p>The data is from six months of screenings, April, 2013 to September, 2013. April, 2013 is when data collection began with revised screening in-take forms after IRB approval and evaluation plan approval. The number of screening days and individuals screened was on-target with program expectations. In 2009, the mobile unit program held 42 screening events with 910 individuals screened, and 60 cardiac testing days with 1,394 individuals tested. It was difficult to get complete data on the reason individuals received cardiac testing (referral source). Cardiac testing data did not contain this information.</p>
<p>2. How many individuals screened were found to be at-risk for coronary heart disease?</p>	<ol style="list-style-type: none"> 1. # of individuals screened with abnormal test results for coronary heart disease risk factors 	<ol style="list-style-type: none"> 1. 344 had high blood pressure, cholesterol, blood sugar, or low blood oxygen. <ol style="list-style-type: none"> a. 258 had high blood pressure ($\geq 140/90$) b. 116 had high cholesterol (≥ 240) c. 64 had high blood sugar/diabetes (>126) d. 1 had low blood oxygen ($<90\%$) 	

<p>3. Did those needing follow up care receive a referral to a physician?</p> <p>a. How many patients were referred?</p>	<p>a. # of individuals screened who were referred to a physician.</p> <p>i. # of individuals who were referred for cardiac testing</p> <p>ii. # of individuals who were referred for other reasons</p> <p>b. # of individuals screened who received assistance making an appointment</p>	<p>a. 122 individuals were marked as follow-up needed during screenings;</p> <p>b. Data not available</p>	<p>The revised screening in-take form included three spaces for program staff to complete follow-up information during screenings. These sections were 1) if a follow-up appointment was with a healthcare provider, including provider name and date, 2) if the individual was referred to a provider, including the provider name, and 3) if the individual was referred to other healthcare. However, during the time period of data collection, this information was not completed by program staff. The evaluators initiated discussions with the program administrator about addressing this with program staff and volunteers conducting the screenings, but these discussions were not completed with the ending of the program. Further, the need for follow-up care at times was decided by a cardiologist after review of screening results. These decisions are not included in the screening data. Therefore, an accurate number of screened individuals who needed follow-up care is not available.</p>
<p>4. Is the Community Advisory Committee building and maintaining partnerships to help this project succeed?</p>	<p>a. # of partners who are members of the Community Advisory Committee</p> <p>b. # of partners who feel Community Advisory Committee has helped project succeed</p> <p>c. # of outside providers that KDMC is in agreement with to contact to get follow-up information on referred individuals</p>	<p>Data not available</p>	<p>Due to the program ending the KHFI project prior to the end of the first year of the evaluation, the partnership survey that was due to be conducted in spring, 2014 was not completed.</p>
<p>5. What factors contributed to successful program participation by individuals?</p>	<p>a. Elements of the program or surroundings that staff perceived as factors to successful program participation.</p>	<p>Data not available</p>	<p>Due to the program ending the KHFI project prior to the end of the first year of the evaluation, the staff focus group that was due to be conducted in spring, 2014 was not completed.</p>

<p>6. What barriers prevented successful program participation by individuals?</p>	<p>a. Elements of the program or surroundings that staff perceived as barriers to successful program participation.</p>	<p>Data not available</p>	<p>Due to the program ending the KHFI project prior to the end of the first year of the evaluation, the staff focus group that was due to be conducted in spring, 2014 was not completed.</p>
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Impact Evaluation Questions	Indicator(s)	Data (include quantitative & qualitative data as appropriate)	Explanation/context (e.g., is this more or less than expected? How is it significant? Were there issues with data availability, quality or completeness?)
<p>1. Did access to healthcare increase for screened individuals who were referred?</p> <p>a. Did referred individuals keep appointments they were referred to have?</p> <p>b. Were the reasons that referrals were made addressed during follow-up appointments for referred individuals?</p> <p>c. Did the referred individual take any action based on follow-up recommendations?</p> <p>d. Did the number of people with a primary care physician increase?</p>	<p>1. #/% of individuals screened who were referred who saw a healthcare provider as recommended.</p> <p>i. Measured by follow-up survey</p> <p>ii. Measured by accessing KDMC medical records (for those who saw a KDMC provider)</p> <p>iii. Measured by contacting outside providers</p> <p>2. #/% of individuals referred whose follow-up care included recommendations to:</p> <p>i. Take medicine</p> <p>ii. See a specialist</p> <p>iii. Other action</p> <p>3. #/% of individuals referred who made changes based on follow-up care recommendations:</p> <p>i. Started medicine</p> <p>ii. Saw a specialist</p> <p>iii. Other</p> <p>4. #/% of referred individuals who are going to continue care with the primary care physician they were referred to</p>	<p>1. #/% of individuals screened who were referred who saw a healthcare provider as recommended</p> <p>i. 2/25 (8%) (measured by follow-up survey)</p> <p>ii. Not available</p> <p>iii. Not available</p> <p>2. #/% of individuals referred, who saw a provider as recommended, whose follow-up care included recommendations to:</p> <p>i. 0/2 (0%) Take medicine</p> <p>ii. 0/2 (0%) See a specialist</p> <p>iii. 1/2 (50%) Other action (keep taking medicine)</p> <p>3. #/% of individuals referred, who saw a provider as recommended, who made changes based on follow-up care recommendations:</p> <p>i. 0/2 (0%) Started medicine</p> <p>ii. 0/2 (0%) Saw a specialist</p> <p>iii. 2/2 (100%) Other (continued medicine)</p> <p>4. #/% of referred individuals, who saw a provider as recommended, who are going to continue care with the primary care physician they were referred to: 2/2 (100%)</p>	<p>Data is from follow-up surveys conducted six months after implementation data collection. Follow-up surveys were administered from October, 2013 to March, 2014.</p> <p>It was difficult for program staff to reach individuals who were referred due to errors in addresses and phone numbers that individuals listed on the screening intake form, as well as individuals moving or disconnected phone numbers.</p> <p>While progress toward program staff getting access to KDMC medical records was made with meeting between program staff, IT, and evaluators, a barrier of IT requiring a social security number prevented this from being accomplished. Due to the program ending the KHFI project prior to the end of the first year of the evaluation, further progress was not made with accessing medical records or with contacting outside providers for follow-up data collection, which was planned to occur in later years of project funding.</p>
<p>2. Did knowledge of risk factors for heart disease increase among individuals screened who were referred?</p>	<p>a. #/% of individuals screened who were referred who are aware of heart disease risk factors at baseline and follow-up.</p>	<p>a. At baseline, 228/678 (34%) were aware of all heart disease risk factors on screening in-take form.</p> <p>At follow-up, 9/25 (36%) were aware of all heart disease risk factors on survey.</p>	<p>Specific individuals screened were not tracked through follow-up because of the limited time span of the project.</p>

3. Did unhealthy behaviors change for individuals screened who were referred?	<p>a. #/% of individuals screened who were referred:</p> <ul style="list-style-type: none"> i. Who are current smokers ii. Who were physically active, such as running or walking, in the past month iii. Who eat 5 or more servings of fruit and vegetables each day 	<p>a. At baseline,</p> <ul style="list-style-type: none"> i. 121/678 (18%) Current smokers ii. 432/678 (64%) Physically active in past month iii. 48/678 (7%) Eat 5 or more servings of fruit and vegetables each day <p>b. At follow-up,</p> <ul style="list-style-type: none"> iv. 2/25 (8%) Current smokers v. 14/25 (56%) Physically active in past month vi. 0/25 (0%) Eat 5 or more servings of fruit and vegetables each day 	Specific individuals screened were not tracked through follow-up because of the limited time span of the project.
4. Did healthy outcomes increase for individuals screened who were referred? a. Did blood pressure, blood sugar, cholesterol and EKG tests improve for referred individuals?	<p>a. #/% of referred individuals who have</p> <ul style="list-style-type: none"> i. Average blood pressure (120/80) ii. Average blood sugar (70-126) iii. Desirable cholesterol (under 200) iv. Normal EKG 	<p>a. At baseline,</p> <ul style="list-style-type: none"> i. 110/678 (16%) Blood pressure is normal (<120/80) ii. 384/678 (57%) Blood sugar is normal (70-126) iii. 342/678 (50%) have desirable cholesterol (<200) <p>b. Not available</p>	Follow-up data not available due to ending of KHFI funding.
5. Did hospital admissions decrease for referred individuals? a. Did cardiac hospital admissions decrease for referred individuals? b. Did hospital visits for non-emergency	<p>a. Rate of hospital admissions for heart conditions for each target county</p> <p>b. #/% of hospital admissions for non-emergency care for each target county.</p>	<p>From KY MONAHRQ</p> <p>a. Discharges for diseases and disorders of the circulatory system, 2011 (rate per 1,000 persons): Elliot 19.6, Floyd 26.8, Johnson 32.3, Lewis 16.8, Magoffin 28.3, Martin 26.3, Morgan 22.8 and Rowan 25.5</p> <p>b. All discharges, 2011 (rate per 1,000 persons): Elliot 88.2, Floyd 199.1, Johnson 225.4, Lewis 85.5, Magoffin 207.1, Martin 176.9, Morgan 137.8 and Rowan 149.0</p>	Follow-up data is not available (latest year available is 2011).

care decrease for referred individuals?			
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