Healthy Women Healthy Futures

An Innovation Station Promising Practice

Purpose: This document is intended to support MCH professionals to implement a practice found in Innovation Station. This resource provides the information needed to replicate the practice and is divided into two sections: the first section provides a high-level overview of the practice while the second section describes how to implement the practice. For additional information on any of the content provided below, please reach out to the practice contact located at the bottom of this document.

Section I: Practice Overview

Location:	Oklahoma	**Title V/MCH Block Grant Measures Addressed**
Category:	Promising	**NPM #1** Percent of women, ages 18 through 44, with a preventive medical visit in the past year **NPM #4** A) Percent of infants who are ever breastfed B) Percent of infants breastfed exclusively through 6 months **NPM #11** Percent of children with and without special health care needs, ages 0 through 17, who have a medical home
Date Submitted:	October 2018	

Practice Description

Based in the Life Course Perspective, HWHF's vision is to improve the health of women and future generations. The program's mission is to provide education, skills, and support to create behavior changes that improve the physical, emotional, financial, and social health of non-pregnant women, their families, and future generations. Founded in 2008, HWHF focuses on underserved populations throughout Tulsa County.

Purpose

Oklahoma is 46th nationally in infant mortality. Our state and Tulsa County both earned a Grade of D from the March of Dimes in 2017. Of concern is that Tulsa County's infant mortality rate (IMR) and premature birth percentages have been consistently above those of Oklahoma overall and the nation. All four of Tulsa's Fetal Infant Mortality Review Perinatal Periods of Risk (PPOR) analyses covering the years 1998 to 2016 demonstrate that the main proportion for fetal-infant deaths is related to mother's pre-pregnancy health. Racial/ethnic disparities are obvious with African American women having the highest excess deaths in the maternal health/prematurity category. Ranked 47th in women's health nationally, it is not a surprise that as

Oklahoma women's health status decreases, both negative maternal and infant birth outcomes increase. Oklahoma is one of the top five states with disparities occurring in IMR for African American and Hispanic populations.

HWHF was originally offered as a pilot at two early childhood education centers (ECEs) to 20 mothers residing in Tulsa County zip codes where the highest rates of infant mortality and premature births existed. Eligible participants were women whose children were enrolled in Head Start or Educare programs, who were able to become pregnant, but who were not currently pregnant at time of enrollment. Classes were presented in Spanish or English. The initial program pilot enrolled women for as long as three years, moving from 20 enrollees to 50, then 75, and then to 100. Attempting to measure maternal and infant outcomes over time, the program enrolled women for three years. Program length decreased to two years, and then to a one-year program, with no differences in participant outcomes. As more women were reached, and with participant input, the program grew to six Tulsa County sites and an enrollment of 100-120 women annually. Participants attended weekly 1.5-hour classes offered in Spanish, English and Burmese/Zomi on site at the ECEs, and developed health and reproductive life plans while consulting with HWHF staff during home visitation. Classes included one hour of content followed by 30 minutes of exercise, typically Zumba, walking, or yoga. Didactic content included topics such as health literacy, pregnancy planning and spacing, stress reduction, domestic violence, disease prevention, chronic disease management, conflict resolution, basic nutrition, dental health, and the benefits of exercise. Classes were taught by nurse educators. Case managers with social work backgrounds assisted in referrals, attended appointments, and provided other participant support. Insurance, if any, and grant funding assisted participants to receive services for physical, emotional, vision and dental needs at two FQHCs or at two university clinics. Nurse educators also provided individual health education for women with chronic health conditions who needed to implement disease self-management strategies.

Program objectives include: 1) Women's knowledge of health promotion measures and disease prevention practices will increase; 2) Women's health will improve through the development of healthy lifestyle practices; 3) Should they become pregnant, women and their children will experience the best birth outcomes possible. It was also anticipated that improving women's health literacy and access to health care through the establishment of a medical home would improve would change their utilization of health services.

Practice Foundation

HWHF is based in Life Course Theory (LCT) which addresses the importance of early programming to one's future health and development through both intergenerational programming (a woman's preconception health) and prenatal programming (in utero). HWHF attempts to reduce participants' risk factors, which diminish health, and improve their protective factors by improving their access to primary care and other health services, and through health education and care coordination.

Core Components

HWHF's core components were 1) assessment - of women's interconception risk factors, including social determinants of health and family environment; 2) education - classes were

provided in one of three languages by a nurse educator to address women's physical, emotional, social and financial health risks; 3) Connecting - through case management provided by a nurse and social work team; 4) Partnership - including access to medical homes and other agencies and community resources.

Practice Activities

Core Component	Activities	Operational Details
Assessment	Assessment of women's risk factors and knowledge gained from classes	Accurately assesses and routinely reassesses women's biological, social, lifestyles, level of depression, coping and health knowledge.
Education	Presentation of health information weekly at childhood education centers. Staff attendance at provider appointments as needed	Weekly 1.5 hour group education classes on a variety of pre-pregnancy health topics (includes 30 minutes of exercise). Individual education for those with chronic conditions requiring self-management (diabetes, hypertension, seizure disorders, and other). HWHF staff attended appointments as needed to model self-advocacy with providers and to ensure information was understood and culturally appropriate.
Connecting	Referrals and linkages to community resources. HWHF staff support at referring agency if needed	Provide referrals and linkages to community resources including medical homes, to provide support and address women's risk factors. Referrals include physical, emotional, social and financial needs for all family members. Case managers or nurse educators
Partnerships	Build resources to support community model and ensure quality product for women and their families	Establish vendor relationships with agencies and businesses (to which women are referred, e.g. medical homes, social services, etc.) that are consumer friendly, culturally aware, and consistently meet women and family needs. Provide and accept feedback to/from vendors and agencies to strengthen service and relationships.

Evidence of Effectiveness (e.g. Evaluation Data)

Program evaluation included standard research protocols, with submission to institutional IRB for expedited research processes and human subject protection. (see attachment for program framework)

Evaluation of program effectiveness is formally conducted three times each year. Participants' demographic information, interconception risk factors, health status (selected parameters) and lifestyle information are gathered at admission to the program. Repeat screenings and assessments are conducted at the end of each semester, with participants serving as their own "controls" to determine any changes in health and lifestyle practices. Outcome data include physical health screening variables (weight, BMI, blood pressure, glucose level, total cholesterol

(TC), HDL level and, TC:HDL ratio), lifestyle practices (weekly exercise, number of daily fruits and vegetables consumed, amount of dietary fat, and amount of sugar/ carbohydrate consumption, tobacco use, and alcohol consumption). It also measures women's coping abilities and reported support. The PHQ9 scale is used to determine participants' level of depression. Pre- and post-test scores administered at each class are used to determine changes in knowledge. Maternal-infant outcomes of participants who became pregnant during enrollment or program graduates are measured by infants' gestational age at birth (weeks and days), birth weights, congenital anomalies, NICU admissions, or other conditions. Maternal birth and postpartum outcomes are also determined by report or medical records. Women's and family members' use of emergency rooms for the past six months is also obtained at admission and at the end of the program. Participant feedback collected via anonymous survey is included in the evaluation. Demographic variables and changes in risk variables are determined using frequencies, percentages, and mean scores, as appropriate. Variables, such as group pre and post test scores or the comparison of admission and final screening data, are compared using paired t-tests or non-parametric tests depending on level of measurement. While not part of program evaluation, participant biometric results are reviewed with each participant in private at the health screenings and each woman is given a "take – home" sheet with her weight, BMI, glucose, blood pressure, and cholesterol values. Women are encouraged to keep the sheets so that they may compare values from each screening to determine their status and progress in the different physical parameters.

Participants (n=410) ranged in age from 17 to 44, with an average of 29.3 years. The majority (76%) were White Hispanic; 10% black; 5% Native American; 4% White Non-Hispanic, 4% Asian and 1% more than one race. Sixty percent had not completed high school; 20% had graduated or obtained a GED and another 20% had had some college, with 6% obtaining an associate or baccalaureate degree. Sixty percent were not employed, with 10% working fulltime and 27% employed part time. Previous pregnancy risks included 14% premature births, 12% very low or low birth weight births, 16% with gestational diabetes and 9% large for gestational age babies. Nine percent had children with special needs and 5% had experienced a pervious infant death. Twenty-five percent had histories of pregnancy intervals of 17 months or less. Other risks included 23% with no daily exercise; 42% ate 0-1 serving of fruit or vegetables/day; 24% were moderately to severely depressed; 15% smoked and 22% were exposed to second hand smoke; 18% had a current or history of domestic violence; 23% had obvious or expected periodontal disease; only 12% took a multivitamin; 63% had an immediate family member with diabetes. Participant chronic illnesses included unknown or uncontrolled Type 2 diabetes, asthma, hypertension, rheumatoid arthritis, hypothyroid, lupus, and epilepsy.

Program evaluation data revealed an increase in participants' health knowledge in all topics at p=<.05 or higher when group pre and posttest mean scores were compared. Related lifestyle behavior changes also demonstrated significant changes. Depression group score means decreased from x= 7.60 to x= 4.78; t=34.197, p=.001; Mean HDL increased from 41.9 to 55.2 (t=-3.506 p = <.001); TC:HDL ratio improved from 4.48 to 3.96, t=4.599, p=<.001.

Weekly exercise of 30 + minutes increased from 1.98 to 5.51, t=-5.130, p=<001. Fruit and vegetable consumption increased from 2.34 to 2.79 servings weekly, t=-5.466, p=<.001. Sugars/simple carbohydrate content decreased from 2.58 to 1.98, t=-5.537, p=<.001.

Seventy-eight participants and/or graduates became pregnant during the program's eight years. Seventy-six (96%) entered prenatal care in their first trimester. Pregnancy spacing of 68 (87%) of pregnancies were at a minimum of 18 months. Fifty-three percent of pregnancies were high

risk, without consideration of obesity as a risk factor. Six infants were born late preterm (34-36 weeks gestation). Two infants were admitted to NICU, one for three days and the other for two weeks. Maternal perinatal complications included post-partum hemorrhage, hypertension, hypothyroid, diabetes and gestational diabetes.

In 2017-2018, HWHF was evaluated externally with a cohort of 88 program graduates to determine program effects over time. The same biometric and lifestyle assessments, along with a pregnancy outcome history were utilized for quantitative data collection and analysis.

Quantitative analysis consisted of comparison of graduates' final program measurements and their recent assessments and screening. An average time of 4.5 years had passed with a range of 7 to 2 years since their HWHF participation. The average age at graduation was 29.3 years and current average age was 34.3 years. Other than increased incidence of obesity, the majority of post values showed that graduation levels were maintained or slightly improved. This included **social determinants**. Women at no income risk increased from 82% compared to 60% at graduation. Unemployment decreased to 71% to 59%. At posttest, participants in the no risk category had increased from 57% to 64%. Transportation risk decreased from 21% to 8%. More participants reported higher education at posttest than pretest. GED, high school diploma, technical schooling, and associate degrees were more prevalent at posttest.

Emotional Health self-risk assessments and PHQ9 values showed improvement in level of **depressi**on with 83% of graduates with no or minimal depression compared to 79% at program entry. The percentages coping very well and fairly well had also improved, while those reporting some trouble coping decreased from 18% to 15%. Those at risk for **domestic violence** had increased from 83% to 94% at the evaluation assessment. At program admission 18% of these women were at risk or at high risk for sexual violence, but none were in the high-risk category and 5% were in the at risk category at the latest assessment. Substance use had also decreased. While no drug use was indicated on self-reports, of the 12% who had indicated they were at risk for **alcohol use** at program admission decreased to 2% at the graduates' assessment. The majority did not **smoke** during the program (93%), and that occurrence had decreased to 100%.

Physical Health Changes included a significant increase in **BMI**, with 45% now obese compared to the initial 37% percent. Compared to pretest, fewer participants were in the normal and overweight categories, while more were in the obese category ($t=-5.614$, $p<.001$). **Blood pressure** category had also increased from 69% in the normal range to 63% and hypertension from 29% to 33%, but these values were not statistically significant. **Total** c**holesterol** risk assessed at pretest and posttest showed positive improvement with 91% in the *Low Risk* category at posttest compared to 78% at pretest. Average **HDL** levels showed that 16% of these participants were in the Low Risk category at posttest compared to 15% at HWHF admission. The TC: HDL ratio percentages improved since graduation, but not at a statistically significant level.

Lifestyle Changes also had only minor changes over time since participants had graduated**.** Women's **exercise frequency** increased from an average of 2.61 days/week to 2.74 days, not statically significant change**. Daily servings of fruits and vegetables** were also similar averaging 2,96 and 2.92 servings respectively. More women (59%) reported consuming a low-fat diet at the evaluation report than at program graduation (44%), and a slightly larger percent reported decreasing dietary sugar and simple carbohydrates (29%) compared to (25%) at graduation. The majority (62%) reported a moderate sugar diet.

Maternal-infant birth outcomes. Women were asked to indicate the number of pregnancies they have had since leaving the program, as well as whether or not they experienced a miscarriage or stillbirth. Since leaving the HWHF program, 56% (N=48) of women reported pregnancies. Thirty-two participants (37%) had one pregnancy, 15 participants (17%) had two pregnancies, and 1 participant had three pregnancies. Out of 63 reported pregnancies, 10 pregnancies (12%) were recorded as a miscarriage. Of the 50 births to the 41 participants, mothers reported experiencing the following: four preterm births (1 at 34 weeks; 3 at 36 weeks gestation). Four infants were admitted into the NICU or special needs nursery, with the longest stay of 6 days. Six births had complications for the baby and 8 women experienced complications, including gestational diabetes (2), oligohydramnios (1), post-partum hemorrhage (2), and a vaginal hematoma (1).

Participants were asked whether they **breast-fed;** bottle fed, or used both breast and bottle-feeding methods. Forty-seven percent reported exclusively breast-feeding and an additional 35% reported both breast and bottle-feeding their infants. Eighteen exclusively bottle-fed.

Overall, HWHF graduates reported receiving health services, having a plan for getting information about a health question or concern, and continuing healthy lifestyle behaviors.

Health Services. Since completing the HWHF program, 90% of the participants (N=79) reported seeing a health provider. Services ranged from well-woman visits, physicals, screenings, vision exams, and dental cleanings. More than half of the women received a well-woman visit and almost half received a dental exam/cleaning and physical. Participants were also asked whether they have **continued to use what they learned**. Eighty-three women responded to the question and 96% reported they have continued to use what they learned in HWHF program. They credit HWHF for their healthy cooking and lifestyle after graduating from the program.. Participants indicated that they are "*getting themselves checked*" and using the information learned in the program to prevent illnesses or finding ways to control their health. participants are now familiar with the importance of getting annual check-ups. Another important finding is that participants are relaying the information they were taught in the program to other people in their community by giving them help, advice, or educating them.

Qualitative methods included focus group interviews with 12 former participants, six Hispanic women, 2 African American, two Caucasian and 2 Asian women. Four major themes and supporting subthemes evolved from the data: 1*) Program Implementation and Program Experience* included motivation to participate (primarily assistance with health and medical benefits), Health Literacy (participants reported being more knowledgeable about their health following participation, accessing care, and advocating for themselves and family members), and Supportive Environment (HWHF facilitators created a learning environment that encouraged growth, learning and sharing among the participants). 2*) Health and Lifestyle Changes* included Individual Health (Reports of a least one individual health benefit; Family Health (Reports that attending the program had positive effects on their families' eating habits; Empowerment and Self-image (Participants reported an increase in self-awareness and confidence. 3) *Future Directions included Recommended Adaptation (Participants* recommended a follow-up program component after completion on the initial program*.)* 4) *Advice to Prospective Participants* (All participants reported they would recommend HWHF to others). 5) *Culturally Specific Implications* included Self-Identity (Participants commonly felt encouraged to advocate for themselves, as they were exposed to positive HWHF role modeling

and staff support in moving forward with their education or other goals). Culturally Responsive (Program design preserved cultural integrity while promoting health). Hispanic participants commonly reported difficulty implementing healthy eating habits and food choices based on the role of food in their culture. They reported that HWHF encouraged them to make modifications to their diet while preserving and respecting the role that food plays in their culture. Due to the cultural responsiveness of HWHF in this area, there were general reports among Hispanic participants of modifications to their families' current diet.

Cultural Appropriation (Participants recognized themselves in a social context outside of their cultural heritage). Hispanic and Asian participants identified coming from minority populations in which they felt undervalued as women, powerless, and expressed a loss of identity. Both Hispanic and Asian participants commonly reported an increase in feelings of empowerment, self-worth, and positive self-image resulting from their participation in HWHF. Caucasian participants and one African-American participant who reported having Hispanic spouses also felt these cultural appropriations. These women reported that they were able to learn from their Hispanic counterparts in the program about their husbands' culture, which promoted a sense of understanding in their marital relationships.

Replication

HWHF began as a small demonstration interconception health program. Because of changes in program funding and the desire to reach more women in the Tulsa community, HWHF has been modified to train and supervise Hispanic and Burmese/Myanmar refugee indigenous peer educators to women and families in their respective communities. The promotoras and sia mah nu teach classes, provide support and make referrals using the assessments, curriculum, and procedures from the HWHF ECE model.

Section II: Practice Implementation

Internal Capacity

HWHF began with a program director (.80FTE) and one nurse educator. As the program grew, staff numbers increased to two baccalaureate prepared nurse educators (2FTE) and two baccalaureate case managers (2 FTE) who worked as a nurse-social worker team at selected ECE. Sites were often determined by the participants' culture and language at each location. The case managers originally were subcontracted through the health department. An administrative assistant (0.5FTE) was hired to assist with data entry, quality assurance, and other program practices. HWHF staff were of the same race and cultures and spoke the same languages as the primarily populations served, African American and Hispanic women. They were actively involved in the Tulsa community and were members of social networks, which facilitated participant trust. Personnel participated in program development and their input was valued. They also received support from HWHF leadership as they pursued their personal goals and/or professional goals of further education and related certification. Leadership taught classes, assisted with assessments, and as a result had an increased awareness of who participants were, their challenges and successes.

Collaboration/Partners

HWHF's initial collaboration was with the Community Action Project who provided the majority of early childhood education (Head Start) programs in Tulsa, with Educare (Bounce Network) and the Tulsa City County Health Department (TCCHD). Case managers (social workers) were subcontracted through TCCHD. HWHF collaborated with Paseo de Salud Diabetes Prevention Program, (previously funded by the Robert Wood Johnson Foundation). Other collaborators include OU Physicians, who also had school based clinics in some of the early childhood education centers, OSU Physicians, Community Health Connection and, Morton Comprehensive Health Care, both FQHCs; five community pharmacies serving underserved populations in Tulsa, Eye Care of Tulsa, Ocean Dental, Eastern Oklahoma Donated Dental Services, Childcare Solutions, yoga instructors, Bill and Ruth's at OU (refreshments), and two regional medical laboratories.

Participants have provided written and verbal feedback about the program from inception. Anonymous comments were obtained and reviewed every four months by all the HWHF staff in consideration for program revision. Both class content and services were modified to meet participants' needs or health interests.

Practice Cost

Annual Budget			
Activity/Item	**Brief Description**	**Quantity**	**Total**
Personnel Salaries & Fringe	HWHF Director (.80 FTE) and Staff, including subcontracts (5 FTE)	5.8 FTE	287,300
Medical Costs	Well Woman visits, dental, vision costs, medications	varied	90,000
Childcare	Childcare during classes	6 classes/week for 46 weeks	12,000
Refreshments	Class refreshments	75 units/week	10,800
Equipment/Supplies	Scales, screening supplies, equipment, other	Screenings 3 times/year	9,000
Indirect Costs	Administrative costs- space/ phone/ internet/ accountant	continual	20,000
		Total Amount:	420,000/year

*****Activity/item costs and quantities may vary in other settings. Contact Dr. Phipps (program director) for further information.

Practice Timeline

Practice Timeline				
Phase	**Description of Activity**	**Date/Timeframe**	**# of time needed to complete/ oversee activity**	**Person(s) Responsible**
Planning/ Pre-implementation	Grant writing	2007	2 months	Director
	Partnership development with CAP Tulsa and Educare, and vendors	2008	1 month, plus continuous as vendors increased	Director
	Program development, interview and hire staff	2008	2 months	Director
	Working with University systems for contract approval and financial tracking	2008	2 months and then continuous	Director/University of Oklahoma
Implementation	Pilot project implementation and evaluation	Fall 2008	3-4 months	Director, Nurse Educator
	Recruitment, enrollment and extension of program to other ECE sites	Fall 2009	Assess twice a year continuous	CAP and Educare Leadership, ECE family advocates, HWHF staff
	Hire bicultural staff for increased sites and program management	Spring 2010	With vacancies continuous	Director, Current staff
	Pre and post program evaluation	Three times/year	Admission, end of each semester	HWHF staff
Sustainability	Reports of program outcomes to University and to funder(s)	2008-2016	Annual and upon request	Program Director
	Cost Benefit Analysis and Social Return on Investment Analysis	2014-2016	With annual reports	Program Director
	Submission of Grant proposals	Continuous		Program Director
	Exploration of becoming a 501c3, and or relocation	2015-2016	Six months	Program Director, staff, University, Community Agency Incubator

Resources Provided

- Healthy Women Healthy Futures Organizing Framework

Lessons Learned

It was advantageous to start with a small population before expanding the program. This allowed time to build positive relationships with the two ECEs. Participant recruitment was facilitated because the program was already seen as valuable for their clients. Participant feedback was invaluable as the program developed. Participants also referred friends and family members to the program.

HWHF is a comprehensive program and ideally all program components should be retained – health services, weekly, on- site education, and health navigation/case management. Initially, class enrollment allowed a new participant to come into the program if there was a vacancy in their ECE group. However, that policy was revisited as the program time decreased from the original 3-year program, to 2 years, to one year. Participants then enrolled as a group, which remained stable until the end of the program year so that participants' knowledge could build with the graduated curriculum.

The importance of bringing the education or services to participants rather than having them come to us was key in this project. Women were in a safe and familiar environment. They were already there, bringing their child to school or picking them up. Some relationships with others were already established. There were no transportation issues. HWHF staff were primarily of the same race and culture, which strengthened the program components and delivery and acceptance of content.

Lessons learned were identified weekly during HWHF staff program and participant review as well as through continuous participant feedback. These include areas such as cultural relevancy/appropriateness of lessons and materials, data collection, data entry and reporting, community agency practices which either facilitate or create barriers to participants' access to care, as well as potential new services or collaborations to increase program services.

Continuous quality improvement has been a goal of the HWHF program from inception. The focus on participants and providing a quality program has been of upmost importance to the director and staff. Several measures have been used to assess program processes, including meetings conducted every other week, where each participant's progress is reviewed, and any needed interventions or follow up actions determined (e.g. post-delivery gestational diabetes glucose appointments, domestic violence referral follow up, home visit outcomes). Any holes in procedures, the need for a new or revised policy, difficulty with vendors or contracts were identified in the meetings and strategies for problem resolution identified.

Participant feedback was formally solicited at the end of each semester through anonymous surveys, but was accepted at any time and reviewed by HWHF staff. Program refinements were often made to improve processes/procedures.

Next Steps

Next steps include manuscript development and resultant publications, as well as continued presentations of the program, partnerships, and participant outcomes over time at professional conferences. Additional steps include development of indigenous community peer educator training programs with black and Native American populations.

Practice Contact Information

For more information about this practice, please contact:

- *Su An Phipps PhD, RN*
- *918-295-1222*
- *sphipps@csctulsa.org*