Healthy Beginnings at Home

PILOT REPORT

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Executive Summary

Healthy Beginnings at Home (HBAH) is a research project to test feasibility and effect size of providing rental assistance with housing stabilization services to unstably housed pregnant women at risk of infant mortality in Columbus, Ohio. A randomized pilot trial was conducted to examine preliminary outcomes for power estimates in a future multisite study. At baseline, the study participants (WEH) had numerous barriers that prevented them from obtaining housing on their own. Although the randomization and recruitment efforts were successful, there were modest changes in the pilot intervention after the project started. First, there were more women than expected who received ongoing assistance in the intervention arm for financial needs. Secondly, due to the effects of the COVID-19 pandemic, women in the intervention arm who received time-limited assistance were granted extra months of rental assistance. In addition, some workshops and trainings were held for intervention arm women. WEH who were in the HBAH intervention trended towards better birth outcomes even with small numbers. However, they continued to be highly vulnerable 18 months later. The results strongly suggest the value of a future multisite randomized trial to evaluate cost-effectiveness of HBAH focused on birth outcomes and the need to extend rental assistance and stabilization services for a longer period to address ongoing needs for all women with housing insecurity and young children.

Abstract

We studied the feasibility and preliminary efficacy of providing rental assistance and housing stabilization services to women who were pregnant and housing unstable. We provide initial effects on housing stability and health as a final report on health outcomes for CelebrateOne. Other reports were conducted evaluating housing outcomes and policy aspects.

Methods

Feasibility was assessed by the extent to which women were housed with program assistance. Preliminary efficacy was assessed by the extent to which there was a trend toward better health outcomes. The changes in housing, health behaviors and birth outcomes were examined from baseline to 18 months of enrollment and compared to a control group. Interim 12-month assessment is also included in this document (Appendix A). Change was analyzed a year or more after the start of the intervention to see if there were any difference from baseline to the 18-month assessment. A telephone-based survey was administered at baseline and given every 6 months from the housing program, Healthy Beginnings at Home (HBAH). A total of 65 participants were included based on the completion of baseline and 18-month time points. Housing was provided to intervention women; the median time of housing placement was 8 weeks, and it took up to 20 weeks in one case. Women received time-limited and ongoing subsidies based on the housing they selected. Along with reports from University of Delaware and Health Policy Institute of Ohio, the timing of housing, the birth of infants and expenditures were examined in addition to the differences between controls and intervention group at 18 months.

Conclusion

The women enrolled in the HBAH study were recruited based on having numerous barriers to obtaining housing on their own and a variety of risk factors for poor birth outcomes. Despite risk factors and barriers to housing, the women in the intervention group trended towards having better birth and health outcomes even though no statistically significant differences were noted. We found that providing women rental assistance was possible through the HBAH collaboration. All intervention women were housed during the intervention and most for the duration of the intervention; however there were strong barriers to maintaining housing for these women such that by the 18 month assessment, many continued to need rental assistance, and a large minority remained housing insecure. These results support the need for a multi-site study focused on birth outcomes to evaluate HBAH.

Introduction

Background

Homelessness in the United States is shockingly common. Largely related to the ongoing affordable housing crisis in the United States, more than half a million individuals are homeless at any point in time. Homeless persons are faced with complex social needs that are intensified by structural problems (Krieger, 2020). Previous research concluded that structural racism and racial discrimination in housing can lead to adverse health outcomes including inequities in the risk of preterm birth (Krieger, 2020). Homelessness during pregnancy is a risk factor for adverse health outcomes. The effects of homelessness and housing insecurity are exacerbated in females of child-bearing age and pregnant women because of their direct effects on infants (Clark, Weinreb, Flahive, & Seifert, 2019; Megan Sandel, 2015; Stein, Lu, & Gelberg, 2000). Evictions can also affect housing stability and maternal and child health outcomes. During pregnancy, specifically the second and third trimester, evictions have been associated with higher probability of low birth weight or prematurity and increased infant mortality (Himmelstein G, Desmond M, 2021). Compared to pregnant women not experiencing homelessness, pregnant women experiencing homelessness were found to be younger, more likely to have Medicaid insurance, and more likely to be non-Hispanic Black, Hispanic, or other racial/ethnic minorities. Additionally, pregnant women experiencing homelessness were more likely to have preterm labor, higher delivery-associated costs and placental abnormalities that were not statistically significant (Yamamoto, 2021).

An indication of homelessness in the 12 months before pregnancy is associated with lower birth weights, longer hospital stays and increased necessity for neonatal intensive care (Richards, Merrill, & Baksh, 2011). This has led to the need to develop interventions to address the social determinants of health, specifically housing instability in women. Each year 700,000 infants are born to low income, urban mothers with 14% of them born low birth weight/or preterm (Leifheit, 2020). Known housing barriers are typically based on affordability, availability and a tenant screening process that affects a person's ability to not only obtain housing but to sustain housing. Potential tenants are screened for possible risks such as credit history (i.e. excessive debt, unpaid or late payments, court judgments), employment, income, landlord references, rental history (i.e. rent paid on time, lease violation notices, conflict with landlord or other tenants, damage to the unit) and criminal history (U.S. Department of Veteran Affairs).

To combat infant mortality, low birth weight and preterm birth, stakeholders in Columbus, Ohio developed the Healthy Beginnings at Home (HBAH) research demonstration project. HBAH is pilot research project to test the feasibility of providing rental assistance with housing stabilization services to pregnant women who are housing unstable and Medicaid eligible. The HBAH collaborative agencies included:

- CelebrateOne, a collective impact initiative to reduce infant mortality, led by the City of Columbus.
- Homeless Families Foundation (HFF), a holistic, strength-based organization that offers homeless prevention and re-housing, education, and stabilization services.
- CareSource, a Medicaid Managed Care Organization that offers care coordination, claims data and referrals for health/behavioral health.
- Columbus Metropolitan Housing Authority.
- Step One, a prenatal care referral hotline and assistance agency.

Through the intervention, the HBAH program offered:

1. Rental assistance in the form of a time-limited 15-month rental subsidy with a 6-month step down period (where renters paid increasing percentages of their rent), ongoing rental assistance in an assisted housing community or ongoing rental assistance through a housing voucher.
2. Housing stabilization services which included:
    a. Family Critical Time Intervention, an evidence-based, time-limited case management model designed to help homeless families reestablish themselves in stable housing with access to needed supports.
    b. Person-centered planning.
    c. Motivational interviewing.
    d. Trauma-informed care.
3. Access to emergency and flexible client assistance funds for families who encounter unexpected financial needs that cannot be met through community referrals.

These included 3 months of after care (access to services and emergency financial assistance if needed) plus security deposits, landlord incentives and utility assistance both at baseline for arrears and during the intervention.

Both intervention and usual care participants were able to access CareSource care coordination and CelebrateOne community health workers that linked participants to other social services in the Greater Columbus area.

Participants were recruited through community partners and StepOne, a prenatal care referral service. These organizations recruited participants and referred potentially eligible individuals to Homeless Families Foundation (HFF). Initial and basic eligibility for the research study was confirmed by the HFF enrollment coordinator; then study eligibility was determined. Women consented to complete surveys for 2 years at 6-month intervals and for Medicaid claims data for themselves and their children to be abstracted for analysis. The surveys were performed via email or over the phone and the results were recorded in REDCap database (Harris, Taylor, Thielke, Payne, Gonzalez & Conde, 2009). Survey modality was based on the preference of the women; however, attempts were made through both when the individual did not respond to the 3 attempts using their preferred method. As a thank you for completing each survey, women were paid $40 on Greenphire Clincard, a debit card designed for research. The baseline, 12-month and 18-month survey collected data on health behaviors, housing affordability, rental instability and food security. Birth data was collected and analyzed as well.

Women were enrolled into the study between August 2018 and February 2019 and randomized into either intervention or usual care. Recruitment was closed after 50 women were enrolled in each arm. To be eligible for the program, women had to meet the following criteria: be enrolled in Medicaid through CareSource (an Ohio Medicaid Managed Care Organization); be 18 or older; be in their first or second trimester of their pregnancy at the time of enrollment; be considered housing unstable (currently unsheltered/sheltered homelessness, currently doubled-up and being asked to leave within 30 days, currently behind on rent at least one month and at risk of eviction, prior history of homelessness and housing costs >50% of household income, or 3 or more moves during the past year and housing costs >50% of household income); and have a household income of less than 30% of the area median income (AMI).

Only 65 women completed baseline and 18-month surveys and were included in the analysis. 12-month results were very similar to 18-month survey results (see Appendix A). As a result, we report on baseline to 18-month surveys to determine if there was any difference in housing and rental stability, birth outcomes and food security. All women gave birth between December 2018 and November 2019. The 18-month survey window opened in January 2020 and ended in September 2020, several months into the COVID-19 pandemic. Therefore, the 18-month survey provides some insights of conditions for women before and during the COVID-19 pandemic, which greatly impacted health, the economy and housing stability across the world. This study was approved by the Nationwide Children's Hospital Institutional Review Board.

Of note, the results of this final report were confounded by the variety of changes to the housing market that occurred in Columbus, Ohio, during the COVID-19 pandemic. The pandemic precipitated loss of jobs and income for many people; however, at the time of the 18-month survey, there was not much public relief provided to the intervention or usual care group. Housing vouchers, an eviction moratorium and emergency rent subsidies were made available after the window ended for this assessment. There were limited data collected by intervention staff to determine to what extent any of these services were used by women in the HBAH intervention program.

Randomization

Consent and randomization were performed by an HFF liaison. If the participant was determined to be eligible, she was asked to fill out a research consent form. If a participant did not consent to partake in the study, she was referred to the usual care services by CareSource, the Medicaid managed care company. Participants meeting criteria that entered the program were randomized using a randomization tool through REDCap software (Harris, Taylor, Thielke, Payne, Gonzalez & Conde, 2009). Program feasibility and performance were assessed by examining the success of providing the intervention and retention in the program.

Interventions

A baseline survey was administered within a week of enrollment that included information about housing (affordability and stability), health and pregnancy progress. Follow-up surveys were then administered 6, 12, 18 and 22 months after the baseline survey was given to capture maternal and child health, housing and food security. As a part of the HBAH, the intervention group was provided housing assistance and housing stabilization services. HFF and the Columbus Metropolitan Housing Authority (CMHA) assisted the women in HBAH in finding housing as a part of the intervention. Once a unit was found that met Housing Quality Standards and willingness from landlords to rent to the individual was secured, rental assistance was provided. Assistance also consisted of help with security deposits, utilities arrears and other housing related costs. Depending on the unit selected, either time-limited rental assistance from HBAH or ongoing rental assistance through federal housing programs was provided. According to HFF, all women in the HBAH intervention group were considered for ongoing rental assistance, but those who had shelter stays, chronic homelessness, evictions, criminal record or those with the highest barriers to housing were encouraged to choose units with ongoing assistance. The eligibility criteria for ongoing assistance was determined by CMHA and the other assisted housing providers, and some families did not qualify based on CMHA standards for assets and need. HBAH rental assistance was fully subsidized for a 15-month period (tenant payments based on 30% of participant's income) with the average tenant responsibility for monthly rent being $27.82. After 15 months, during the step-down period, assistance was reduced each month by 1/6 of the total contract rent until the participants were responsible for the full contract rent.

Additional housing stabilization services, including development of a person-centered services plan, emergency assistance, financial coaching, referrals, education, stabilization (as needed), an individualized housing retention plan, health care coordination, nutrition assistance and home visits. These were periodically reviewed and revised through a patient-centered plan and home visits from a housing stabilization specialist. Although these other services were provided, they were unable to be tracked at the client level. Thus, it is not clear to what extent these other services may have accounted for any differences in outcomes. Frequency of care coordination provided by the managed care company was assessed by CareSource, but no differences between the intervention and control group were found in number of contacts.

Study participants assigned to the usual care group had access to all other existing health and social services in the Greater Columbus area along with services provided through their Medicaid provider, CareSource. CareSource provided women with a care coordinator who helped them make connections with resources in the community and medical services. All families (intervention and control) had access to a CelebrateOne community health worker and CareSource care coordinators.

Results

The HBAH pilot study enrolled 100 women into the program in total, with 50 in each arm. A total of 95 women were enrolled at the end of the 18-months; five women withdrew for various reasons over the course of the program. All women were asked to complete each survey with 3 emails, 3 phone attempts and a letter sent to their most recent address. Only 65 participants completed both the baseline and 18-month surveys. Other timepoints had similar rates of missing data. The 12-month survey data are included in a table as an example, but the results of that wave did not change any conclusions (see Appendix A). Participants who withdrew at any point of the program and for any reason were not included in this analysis.

Demographic characteristics

Table 1 displays the demographic characteristics of the study participants. The majority of the women (55% in intervention and 48% in the control group) received a high school diploma or GED, and 26% of women in the intervention completed some high school compared to 22% of women in the control group. The majority of women (80%) self-identified as African American/Black. All participants in the total group surveyed spoke English as their primary language. After 18 months in the program, 37% of women reported that they were employed in the intervention compared to 52% of the control group. The average age of women in the intervention group was 25.8 (SD= 4.729) and 25.2 (SD=5.245) years in the control group.

Table 1 Demographic Characteristics

	Intervention (n=38)	Control (n=27)	Total (n=65)
Race/Ethnicity			
Non-Hispanic Black/African American	84% (32)	89% (24)	86% (56)
Age in years (Mean, SD)	25.79, 4.729	25.18, 5.245	25.49
Primary Language			
English	100% (38)	100% (27)	100% (65)
Education Attained			
Some high school	26% (10)	23% (6)	26% (16)
High school graduate or GED/Some college, vocational, or technical school	61% (25)	48% (20)	74% (45)
Employment Status			
Yes	37% (14)	52% (14)	43% (28)
Caregiver (# of children)			
1	24% (9)	30% (8)	26% (17)
2	45% (17)	37% (10)	42% (27)
None	32% (12)	33% (9)	32% (21)

Source: Nationwide Children's Hospital 18-month survey
Note: Numbers less than 5 are not included, as these cannot be reported to the public or used in any presentations or publications under institutional ethical guidelines.

Feasibility characteristics

There were several known barriers to housing individuals who have experienced housing instability present among participants (Table 3). Women entering the program had substantial utility arrears. Among those in the housing intervention group, 30 out of 49 participants (61%) had electric debt before HBAH. There were 28 out of 49 (57%) participants who had gas debt before the program. Over the course of the program, HBAH paid a total of $58,148 in electric debt and $36,913 in gas debt. The average participant with arrears had $1,162.96 in electricity debt and $738.26 in gas debt. Other barriers included landlord reluctancy given rental history, wanting to wait for other possible housing subsidies, administrative delays for receiving housing subsidies, low housing stock, and lack of safe and affordable housing. Data was provided by The Homeless Families Foundation.

Table 2 Feasibility

Feasibility Measures	Intervention Group (n=49)
Potential risk of eviction	10
# of month to month leases	21
Rental assistance provided ≥ 1x	20
# of additional assistance requests ≥ 1x	42
Total Electric Debt before HBAH	$58,148
# participants with electric debt	30
Total Gas Debt before HBAH	$36,913
# participants with gas debt	28
Average rent	$718.80

Source: Homeless Families Foundation, CelebrateOne
Note: Numbers less than 5 are not included, as these cannot be reported to the public or used in any presentations or publications under institutional ethical guidelines.

Eventually, HBAH was able to house all 49 women in the intervention group of the program (1 household withdrew before housing placement to relocate to another city). The average time of housing placement from the intake period was 8 weeks, but the longest was 20 weeks, reported by The University of Delaware.

Among HBAH intervention group, 22 families received time-limited rental assistance paid to private landlords. Another 27 received ongoing rental assistance (project-based and/or long-term portable vouchers). The average rent paid by those in the HBAH intervention group was $718.80. Families who did not receive ongoing rental assistance paid increasing shares of the rent during the 6-month step-down period to paying full market rent (Health Policy Institute of Ohio). HBAH also paid $30,351.72 in utility assistance for the women during their program housing from October 2018 until December 2020; this was separate from baseline utility arrears.

Some families within the intervention group also had numerous issues such as domestic violence, neighborhood safety, housing quality concerns and/or lease violations which led to several families moving from their original housing placements. The cost of relocation to different housing units was covered by HBAH. Along with the moving costs, at times there were additional fees associated with breaking a lease that were also necessary for the program to cover. The total cost of these items is not known. A total of 10 families were at potential risk of evictions based on the housing affordability index (Homeless Families Foundation).

During the step-down period from June 2020 December 2020 (which took place during the COVID-19 pandemic), families paid rent late or requested rental assistance. According to HFF, rental assistance was provided more than once to 29 families in the intervention group, primarily those in time-limited housing. The community's homelessness management information system did not report any shelter re-entries at the end of the program.

Birth outcomes

There were 64 live singleton births to the 65 women participants (Table 2). There was 1 fetal death reported in the control group. No statistically significant difference was found in fetal mortality. Of the 38 live births in the intervention, 33 were born full term and healthy birth weight. Twelve of 27 control (44%) pregnancies had low birth weight or preterm deliveries. Of the 26 live births in the control group, 14 were born full term and healthy birth weight. Of note, ethical guidelines from the Abigale Wexner Research Institute at Nationwide Children's Hospital prevent the publication of any outcomes describing fewer than 5 persons because of ease of identification, so some information has not been included in this report.

Table 3 Birth outcomes

	Intervention (n=38)	Control (n=27)
Number of fetuses	38	26
Live births	38	25
Pre-term and or low birth weight	--	10
Full term and healthy birth weight	33	15

*singletons only, 1 fetal death (miscarriage or stillbirth)
Source: CareSource
Note: Numbers less than 5 are not included, as these cannot be reported to the public or used in any presentations or publications under institutional ethical guidelines.

Housing outcomes

In the 18-month survey, 37 participants in the intervention group (97%) described their living arrangement as "living in a house/apartment that I rent." compared to 18 (64%) in the usual care group. Six participants in the intervention group (19%) reported that they were unable to pay rent on time during the prior 6 months compared to 6 (23%) women in the control group (Table 3). Fifteen women (39%) women in the intervention group reported that they spent more than half of their income on housing, including monthly rent and utilities during the prior 6 months while 15 (56%) of the women in the control group spent more than half of their income during the prior six months. Ninety-two percent (n=34) of participants in the intervention group reported living in 1 place in the last 6 months compared to the control group, where 81% (n=22) lived in 1 place. In the control group there was 1 participant who reported being evicted in the last 4-6 months, a self-reported measure. Also, at 18 months, the intervention and control groups reported similar percentages of women that did not have any concerns with their housing; 47% and 48% respectively. For women reporting at least 1 housing concern, both 26% of women in the intervention group and 26% in the control group also reported at least 1 housing concern.

Table 4 Housing and Social Related Health Outcomes

	18-month Survey (n=65)	
	Intervention (n=38)	Control (n=27)
Housing Affordability		
Unable to pay rent on time	19% (6)	23% (6)
Rental Stability		
Places lived in last 6 months		
1	94% (34)	81% (22)
Eviction in last 4-6 months		
No	100% (37)	96% (26)
Housing Concerns		
No Concerns	47% (18)	48% (13)
1 Concern	26% (10)	26% (7)
2 or more concerns	26% (10)	26% (7)
Breastfeeding		
Yes	21% (8)	30% (8)

	18-month Survey (n=65)	
	Intervention (n=38)	Control (n=27)
Health Status		
Excellent/Very Good	61% (23)	66% (18)
Good/ Fair/Poor	39% (15)	33% (9)
Tobacco Use		
Yes	18% (7)	33% (9)
No	82% (31)	66% (18)
Behavioral Health Conditions*	42% (16)	62% (17)
Food Security		
Running out of food/ Cutting or skipping meals		
Yes	32% (12)	--
Preterm birth/Low-birth weight*	--	37% (10)

Source: Nationwide Children's Hospital 18 month survey
*Behavioral health conditions include anxiety, depression, alcohol use and substance use.
Note: Numbers less than 5 are not included, as these cannot be reported to the public or used in any presentations or publications under institutional ethical guidelines.

Health outcomes of mothers at 18-months are presented here with some measures aggregated because of extremely small numbers. Health data was collected on maternal depression and anxiety, medical conditions, health status and health behaviors (i.e., exercise and tobacco, alcohol and substance use). Over 60% of women in the intervention and control group reported in general their health is excellent or good. Women who reported using alcohol and/or any substance in both groups combined was approximately 15%. In the intervention group 18% reported tobacco use, compared to 33% in the control group. Seventeen percent of women in both groups scored a 3 or higher for depression, indicating they may need further evaluation for depression. Similarly, 20% of women experienced anxiety. Women in the intervention and control groups reported having 6 medical conditions diagnosed by a doctor or clinician such as a therapist (e.g., high blood pressure, diabetes, anemia, autoimmune disease, depression and obesity.)

Discussion

Healthy Beginnings at Home (HBAH) is an ambitious, collaborative effort to test the feasibility and preliminary impact of providing housing assistance to improve birth and housing outcomes among women who are pregnant and experiencing housing instability. The pilot study conducted among 100 such women revealed several things. First, there were extreme physical, emotional and financial needs among families that were anticipated but still disconcerting. Moreover, these needs would likely have prevented almost all of the participants from achieving independent housing without a program like HBAH.

The diverse range of issues confronting this sample underscored the need to assess women comprehensively. Although there was a large number of participants with prior evictions, lack of income and extensive utility arrears, all HBAH participants were successfully housed (except 1 who moved out of the county). Yet numerous medical and mental health concerns often interfered with efforts to address family resources. Any intervention planning for a similarly at-risk group going forward must consider comprehensive services addressing these concerns.

Relatedly, some costs incurred during the project were not originally included in the budget, such as mid-point moving costs. Ongoing utility shortages and other financial urgencies arose, requiring many of the women to seek additional assistance from the program. At the 18-month survey, many women were still struggling with financial issues. In retrospect, this is not surprising because most of the women delivered babies in the middle of the intervention and had to cope with a newborn child, often other children, and their own health in addition to their housing. Women faced challenges that were exacerbated by greater systemic issues of racism, no right to housing, low wages, gaps in healthcare, etc. Eighteen months may not be enough time to address many of the systemic and longstanding issues these women face.

Most importantly, birth outcomes trended towards large differences. It was anticipated that providing supportive housing for women who were pregnant and homeless would markedly alter their well-being and stress levels; the pregnancy outcomes alone might make this an important societal intervention. This study was established as a pilot precursor to a future multisite cost-effectiveness study. Due to the small study size, the marked differences in low birth weight, fetal loss and preterm delivery between the intervention and the control group were not statistically significant. In a larger multisite study, sufficient fidelity in implementation of the program, a clear assessment of variation among sites and sufficient size of the study would allow definitive conclusions about HBAH effectiveness. Until then, HBAH is conceptually an important idea but not fully tested.

Several caveats are important. Most importantly, the intervention assessed at 18 months was at the start of the COVID-19 pandemic, while ongoing tracking occurred in the midst the ongoing pandemic. This pandemic worsened efforts to achieve economic stability because of closings, unemployment and other consequences of the economic downturn. Economic issues were largely because of job loss and difficulty finding work, impacted employment (University of Delaware, Final report). The ongoing pandemic raises concerns about the housing stability for the women after HBAH. However, expanding this project as a multi-site randomized trial will elevate most of these concerns and answer some questions.

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