

Healthy Start in Housing: A Case Study of a Public Health and Housing Partnership To Improve Birth Outcomes

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Abstract

This article describes the collaboration that supported the development and implementation of the nation's first contemporary program to use housing as a strategy to promote healthy birth outcomes. Using case study methodology, we examine how two agencies with distinctly different missions, the Boston Housing Authority (BHA) and the Boston Public Health Commission (BPHC), were able to successfully collaborate and develop the program Healthy Start in Housing (HSiH) in 2011. HSiH provides priority access to housing in the city's traditional family housing developments to homeless and housing-insecure pregnant women who have existing medical risks associated with poor birth outcomes. Data were collected from eight key stakeholder interviews, two focus groups with HSiH staff, program documents, and archival records. The contextual factors, chronology of the development of HSiH, and lessons learned were identified from an analysis of the case. We found that recognizing the need for interdependence, having a history of previous interagency collaboration, and clear and mutually shared goals facilitated the development of the HSiH collaboration. The challenges to cross-agency collaboration between the BHA and BPHC were minor but did exist, including difficulty in assessing BHA eligibility at program entry. This case study provides insights to the key components of a unique collaboration that aims to promote healthy birth outcomes and sets the stage for future research to assess the health effects of program participation.

Introduction

When public health officials measure the health status of a population, the two primary health indicators of interest are life expectancy and infant mortality. Infant mortality is considered a highly sensitive indicator of the health of a population. It reflects the direct causes of infant death and other factors that are likely to influence the health status of whole populations, such as their economic status, general living conditions, social well-being, rates of illness, and the quality of the environment (Reidpath and Allotey, 2003). Prematurity, defined as the birth of infants at less than 37 weeks gestation, and low birth weight (LBW), defined as the birth of infants weighing less than 2,500 grams, are associated with most infant deaths and are a major public health concern. The effects of prematurity and LBW can persist across the life course, placing children at elevated risk for cognitive and behavioral concerns (D'Agio et al., 2002; Hack et al., 2005; Klebanov, Brooks-Gunn, and McCormick, 1994; O'Shea et al., 1997). In the United States, societal costs of premature, LBW births exceed \$26 billion a year (Institute of Medicine, 2006).

Despite an overall improvement in infant survival, Black infants in the United States continue to die at a rate twice that of White infants, a pattern that has persisted since the 1950s (Hogan et al., 2012).¹ The disparity in infant mortality is attributable to racial differences in LBW and premature births and explains approximately 80 percent of the observed Black-White gap in infant mortality (Bryant et al., 2010; MacDorman and Mathews, 2011).

To date, existing approaches, such as expanding access to prenatal care and case management, have not been successful in eradicating these disparities, even in communities such as Boston, the setting for this case study. Boston has a strong infrastructure of primary and specialty services, near universal access to health insurance, and comprehensive federally and locally funded perinatal support services, yet the rate of premature births among Black infants in Boston is 1.5 times that of White infants (BPHC, 2011b) and the rate of LBW for Black women is 59 percent higher than the rate for White women (BPHC, 2011b).² Research supporting the link between early experiences with social inequality and adverse health outcomes (Barker, 1995; Felitti et al., 1998; Geronimus, 1996; Stein, Lu, and Gelberg, 2000) have forced public health leaders to reevaluate previous strategies and develop new program models that support women's health before conception and throughout their reproductive years. As a result of this greater appreciation of the importance of social determinants of health, stable housing has emerged as a critical factor in the lives of women at risk for poor birth outcomes.

The Affordable Care Act and the newly adopted National Prevention Strategy (ASTHO, 2013; NACCHO, 2013) have created opportunities to strengthen housing and health collaborations. The emergence of a new approach to policymaking and program development, Health in All Policies (HiAP), provides a framework for such collaborations. The HiAP approach integrates considerations of health, well-being, and equity during the development, implementation, and evaluation of

¹ The national infant mortality rate is now 6.6 per 1,000 live births, a 4-percent decrease since 2000 (Mathews and MacDorman, 2012) and a 28-percent decrease since 1990 (CDC, 1993). For Black infants, the rate in 2008 was 12.67 per 1,000 live births compared with 5.52 per 1,000 live births for White infants.

² Numbers are based on 2009 data.

programs and policies. This approach is being promoted by major public health organizations, including the National Association of County and City Health Officials (NACCHO) and the Association of State and Territorial Health Officials (ASTHO). The U.S. Department of Housing and Urban Development (HUD) has integrated the HiAP framework into its 2010–2015 strategic plan. Its goal to “utilize housing as a platform for improving the quality of life” by “utilizing HUD assistance to improve health outcomes” is an example of this approach (Bostic et al., 2012: 2133). Despite a strong tradition of partnerships between housing authorities and public health agencies, to our knowledge none have focused specifically on pregnant women who have existing medical risks associated with poor birth outcomes and none have had the explicit goal of improving birth outcomes (Krieger and Higgins, 2002). Understanding how collaborations work is key to understanding the implementation and dissemination of HiAP.

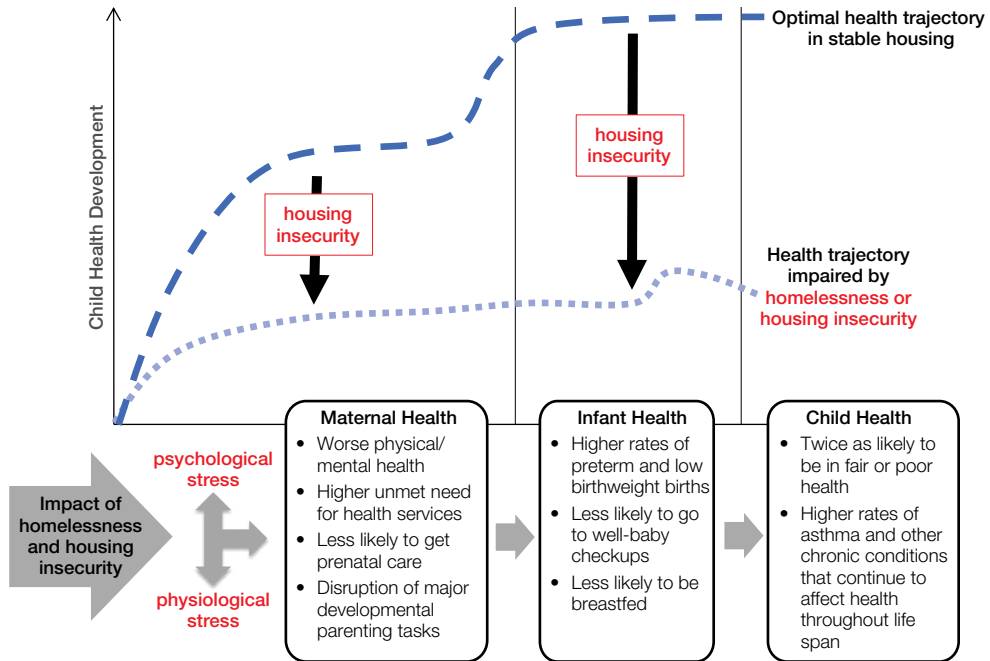
Using case study methodology we examine how two agencies with distinctly different missions, the Boston Housing Authority (BHA) and the Boston Public Health Commission (BPHC), were able to successfully collaborate and develop the program Healthy Start in Housing (HSiH). Initiated in 2011, HSiH was designed to provide intensive case management and priority access to housing in the city’s traditional family housing developments to homeless and housing-insecure pregnant women with existing medical risk for, or a previous history of, poor birth outcomes. We found that the development of the HSiH collaboration was facilitated by recognizing the need for interdependence, having a history of previous interagency collaboration, and clear and mutually shared goals. Although this case study does not provide data on the efficacy of the program, it nevertheless provides important insights from a unique collaboration that supported the development and implementation of the nation’s first program to use housing as a strategy to promote healthy birth outcomes.

Conceptual Framework—Life Course Theory

Life course theory (LCT) provides the conceptual framework to understand the effects of housing on birth outcomes and the trajectory of a child’s early development (exhibit 1). LCT has emerged nationally during the past decade as an explanation for health disparities. LCT is based on the principles of health trajectories, early programming, critical or sensitive periods of development, cumulative effect, and risk and protective factors. Stated more simply, LCT examines how the places where people are born, grow, live, work, and age contribute to their health outcomes, and it searches for critical or sensitive periods of risk and for the effects of cumulative exposures (Berkman, 2009; Hogan et al., 2012). LCT emphasizes the importance of social determinants of health and, in doing so, offers a new way of understanding and, therefore, addressing the persistence of disparities in birth outcomes. One such social determinant is housing, which is a major challenge for low-income women who are pregnant and have young children. To be specific, LCT provides the theoretical framework to describe an explanatory pathway connecting housing security to adverse birth outcomes. This hypothesized pathway links housing insecurity to psychological stress, psychological stress to physiological stress, and physiological stress to adverse birth outcomes. The fact that the effect of housing stress can affect at least two and possibly more generations (Collins et al., 2006) provides a rationale to provide priority access to housing to pregnant, at-risk women. LCT has become the leading framework underlying national- and state-level maternal and child health programs (Kotelchuck and Fine, 2010). Its application to housing policy and understanding how housing effects birth outcomes and child development is novel, however.

Exhibit 1

The Effect of Homelessness and Housing Insecurity on Maternal, Infant, and Child Health: A Life Course Perspective



Source: Adapted from Halfon, Inkelas, and Hochstein (2000)

Literature Review

We have organized the review of relevant literature thematically, presenting first the research examining the effects of homelessness on birth outcomes and early child development. Next, we describe the literature that explores how pregnancy increases the risk of homelessness. We conclude with a review of the literature that examines housing partnerships that aimed to promote healthy child development.

The Effect of Homelessness on Birth Outcomes and Early Child Development

The link between a woman’s health during pregnancy, birth outcomes, and future child development is well established. Homelessness is associated with a cascade of health outcomes that affect early child development. Beginning with pregnancy, homelessness is associated with poor maternal physical and mental health (Crawford et al., 2011; Institute for Children, Poverty, and Homelessness, 2012; Weinreb et al., 2006) and with heightened unmet need for health services (Lewis, Andersen, and Gelberg, 2003). Analysis of data from the U.S. Centers for Disease Control and Prevention’s Pregnancy Risk Factors Surveillance System (PRAMS) suggests that homeless pregnant women were less likely to have adequate prenatal care, take prenatal vitamins, and breastfeed, and they were more likely to smoke than housed mothers (Richards, Merrill, and Baksh, 2011).

Relative to birth outcomes, homelessness is associated with premature birth and LBW, a major factor influencing a child's physical and cognitive development. In a 1997 retrospective study of homeless women who had given birth in the previous 3 years, Stein, Lu, and Gelberg (2000) found that controlling for use of prenatal care, greater homelessness severity (measured in terms of homelessness during the first trimester and longer duration or repeated instances of homelessness) was a more accurate predictor of premature birth and LBW than any other factor studied, including smoking, substance abuse, and previous mental health hospitalization. The effect of homelessness on birth outcomes was greater for Black women than for White women (Stein, Lu, and Gelberg, 2000). A recent study substantiated these findings; Merrill, Richards, and Sloan (2011) used national data from PRAMS to examine the relationship between birth outcomes and psychosocial and pregnancy-related risk factors. Compared with housed women, homeless women were more likely to experience stressful life events and to give birth to infants who were, on average, 17.4 grams lighter in birth weight after adjusting for maternal age, race, ethnicity, region, education, and marital status. The study found that housing status modified the effect of risk factors on birth outcomes. The negative influence of stressful events, such as late entry into prenatal care, family illness, and relationship conflicts, on infant birth weight was significantly greater for homeless women than for housed women. In both the Merrill (Merrill, Richards, and Sloan, 2011) and Stein (Stein, Lu, and Gelberg, 2000) studies, the unique effects of homelessness on birth outcomes matched or outweighed those of any other adverse circumstance.

The effects of homelessness on child outcomes continue well after birth (Weinreb et al., 1998). The instability that comes with parenting when a family is homeless exacerbates risks for adverse child health outcomes (Perlman et al., 2012). Women who are homeless are less likely to attend well-baby checkups and initiate or continue breastfeeding (Richards, Merrill, and Baksh, 2011). Breastfeeding provides infants with long-term protective effects in the risk of allergies, obesity, eczema, and type 1 and type 2 diabetes (Ip et al., 2007). Children who are homeless are twice as likely to be in fair or poor health, and they have higher rates of asthma and other chronic conditions (David, Gelberg, and Suchman, 2012; Shinn et al., 2008). Overall, compromised health status and unmet health needs exert a negative effect on child development (Richards, Merrill, and Baksh, 2011). Little empirical evidence exists that explores the effect of homelessness on a parent-child relationship. Using developmental attachment theory, however, David, Gelberg, and Suchman (2012) present a compelling argument about how homelessness disrupts the major developmental parenting tasks in early childhood. Secure attachment, the foundation of children's healthy social-emotional development, is predicated upon a safe, secure, and predictable environment that enables a parent to respond in a consistent manner to a child's needs. The circumstances of homelessness work against parents providing both the physical and emotional environment to support secure attachment.

The effects of housing insecurity on maternal and child health are more difficult to study than the effects of homelessness. A study by Park, Fertig, and Allison (2011) compared maternal reports of health outcomes for children who were homeless, children in doubled-up settings, and children of low-income but housed families, using data from the Fragile Families Study. Elevated prevalence of physical disability among homeless children was the sole difference that emerged across the three housing groups in that study. Lack of other health differences may, however, reflect that the study controlled for LBW of children in the sample. Because homeless children were significantly

more likely to have been born at LBWs than housed children and LBW was predictive of later health deficits, this analytic approach may have obscured actual differences (Park, Fertig, and Allison, 2011). In contrast to the findings of Park, Fertig, and Allison (2011), a study by Children's Health-Watch (2011), "Behind Closed Doors: The Hidden Health Impacts of Being Behind on Rent," found a higher prevalence of poor physical health and developmental delay among children whose families were behind on rent compared with children who had stable housing. In addition, mothers who experienced being behind on rent were almost as likely to have experienced poor health or depression and were more likely to have foregone healthcare or food expenditures to pay rent compared with mothers in sheltered homeless families. These findings support the hypothesis that the psychological stress of poor housing has an effect across generations, affecting both maternal and child health.

Pregnancy As a Factor That Increases the Risk of Homelessness

The importance of developing housing programs to promote healthy birth outcomes and targeting such programs to pregnant women is motivated by the changing demographic composition of homelessness. In 2012, 38 percent of the total homeless population in the United States consisted of homeless people in families (Emergency Shelter Commission, 2012). In Boston, largely as a result of the high cost of housing and the tight rental housing market, the proportion is higher. In 2011, 49 percent of Boston's homeless population was family members rather than individual adults (Emergency Shelter Commission, 2012). Although homelessness has decreased during the past 5 years, the decline has been relatively less among people in families, 3.7 percent, compared with the decline of 6.8 percent among homeless individuals. Overall, the number of families in shelter has increased by approximately 29.0 percent during the 3-year period from 2007 to 2010.

Descriptions of homeless women currently do not ascertain pregnancy status. The demographic characteristics and pattern of housing instability of homeless families suggest that pregnancy is a factor that moves women and their families from precarious housing situations to homelessness, however. A typical homeless family is a young mother with children less than 6 years old and an income below the federal poverty level (Bassuk, 2010; Buckner, 2008; Perlman et al., 2012). For these families, and for pregnant women without children, homelessness is usually preceded by periods of housing instability characterized by frequent moves and "doubling up" with friends and relatives. Based on data from the 2010 Annual Homeless Assessment Report to Congress, 43 percent of families in shelters became homeless after their living arrangements with family and friends were no longer tenable (Cortes et al., 2011; Samuels, 2010). The increased need for space and the disruption of normal routines that accompany the birth of an infant may be the critical factors that make a previously unstable living situation untenable (Weitzman, 1989).

Housing Partnerships To Promote Healthy Child Development

Partnerships between local housing authorities and other governmental and private organizations have been used to support housing stability among high-risk populations. Most of such partnerships historically have been targeted at single chronically homeless individuals and, more recently, special populations, such as individuals with substance abuse, HIV infection, and mental illness, whose care needs are more expensive when not stably housed (Rickards et al., 2010). Partnerships

that affect children fall into two categories: those focused on improving environmental conditions, such as HUD's Healthy Homes Initiative to reduce indoor toxins and allergens that trigger childhood asthma (Krieger, 2010; Krieger and Higgins, 2002; Saegert et al., 2003) and those that address family homelessness (Cortes et al., 2012). The partnerships targeted to homelessness among families are most relevant to this case study. The common characteristic of these partnerships is linkage of housing and human services. A 2012 report that Abt Associates prepared for U.S. Department of Health and Human Services describes 14 innovative programs that integrated housing and human services to better serve homeless and housing-insecure families (Cortes et al., 2012). All the programs described in the report integrated intensive case management with housing support, but they differed in respect to the subpopulations they served and the extent to which they focused on outcomes other than housing stability (Cortes et al., 2012). No programs targeted medically at-risk pregnant women or reported partnerships with a local public agency. Extant literature indicates that HSiH is unique in its focus on medical risk for poor birth outcomes and its explicit long-term goal to positively influence birth outcomes. It represents a new type of partnership to support housing stability and the health of women and infants. Understanding the development and implementation of this partnership will contribute to the dialogue around using the HiAP framework to promote the health of vulnerable women and children.

Methods

We present a descriptive case study of an interagency collaboration that used the HiAP framework. To be specific, we describe the collaboration between a city's public health department and its housing authority to implement a program to improve birth outcomes. A case study approach is well suited to the aims of this study. It seeks to answer "how" and "why" questions; to be specific, it can be used to describe an intervention or phenomenon and the context in which it occurred (MacDorman and Mathews, 2011; Yin, 2009). Its strengths lie in its ability to incorporate a variety of types of evidence and present complex phenomena in a way that is easily understood by a broad audience. This approach is particularly important given the novelty of the HSiH program. The ability to analyze documents and to conduct in-person interviews allowed for an in-depth review of the evidence and enabled us to elucidate some of the details of the collaboration that led to the development of the HSiH program.

Data Sources

We used three of the six main sources of evidence highlighted in case study literature: program documents, archival records, and stakeholder interviews. Yin (2009) emphasizes the importance of program documents for corroborating and augmenting other sources of evidence. In this case study, program documents included the memorandum of agreements (MOA), which documented the specifics of the interagency collaboration; press releases; newspaper articles; meeting agendas; and forms that program staff and participants used. Archival records included service records showing the number and characteristics of women participating in the program during the first year of implementation. The stakeholder interviews included eight in-depth interviews with key informants from the BPHC, BHA, the Emergency Shelter Commission, and two focus groups with HSiH front-line staff. We conducted the stakeholder interviews and focus groups in February 2013, more than

a year from the program's start date. We selected key informants from all the participating agencies and included individuals involved in both management decisions and day-to-day implementation. The key informants included four members from the BPHC, three members from the BHA, and the Director of the Emergency Shelter Commission. From BPHC, we interviewed the Director of the Bureau of Child, Adolescent and Family Health, who is responsible for management decisions and program oversight of the city's broad array of maternal and child health programs addressing birth outcomes, early childhood well-being, youth health and development, women's health, and violence prevention. We also interviewed three program managers of the Healthy Baby/Healthy Child and the Father Friendly Initiative program, who were responsible for daily operations and supervision of case managers, one of whom also served as the primary liaison with BHA staff. From the BHA, we interviewed the Director of Operations of Property Management at BHA, who oversees the functioning of all of physical BHA housing developments; the Director of Occupancy, who oversees all the leased housing programs; and the Assistant Director of Occupancy, who provides supervisory support to BHA staff processing housing applications. We also interviewed the Director of the Emergency Shelter Commission, who is responsible for management and strategic planning of the city's programs for homeless families and adults in crisis. Interviews of HSiH participants were not included in this examination of the big picture collaborative efforts of BHA and the BPHC, but they are currently being conducted for separate program evaluation analyses.

Analytic Approach

Analysis of data covers the period beginning in the spring of 2011—when the idea of addressing disparities in birth outcomes through a supported housing program was first discussed—through the fall of 2012, which marked the first year of enrollment of participants into HSiH. We include significant background factors mentioned by interviewees and activities related to the planning and implementation of the partnership during the program's first year.

Program documents and archival records were obtained and catalogued chronologically. The interviews and focus groups were audiotaped and transcribed. Common themes were identified. Transcript review began after two interviews, which enabled us to continuously refine the probe questions, develop themes, and monitor for thematic saturation (Guest, Bunce, and Johnson, 2006). To assess data validity, we triangulated results, comparing interviews with members of different organizations and interviews with members who held different positions within the same organization (MacQueen et al., 2008; Patton, 1999). The accuracy of the sequence of events was cross-checked with people known to hold different roles in the program's development. Major themes were identified from analysis of the case with the aim of capturing the complexity of interagency collaborations that led to the successful development and implementation of the HSiH.

Results

The results are presented in three sections. The first section describes the contextual factors leading to the development of HSiH, including the key players and influential historical factors. The second section outlines the chronology of the partnership between BPHC and BHA that led to the creation of HSiH. The last section analyzes major processes and factors that influenced the actualization of HSiH, including facilitating factors for program success and ongoing challenges.

Contextual Factors

The key players (BHA and BPHC) and the historical influences that provided the setting for HSiH are described in the next section.

Key Player: BHA

The BHA is the largest landlord in Boston and the largest public housing authority in New England. As such, the BHA houses approximately 10 percent of the city's residents through its programs. Public housing was established to provide decent and safe rental housing for eligible low-income families, elderly people, and people with disabilities. BHA's 64 developments offer different sizes and types of public housing, including 27 traditional family developments that range from town-homes to highrise apartments. BHA has housing locations in all major neighborhoods of the city. In addition to providing conventional public housing, the BHA also provides more affordable housing through the administration of several rental assistance programs.

The BHA currently owns approximately 11,300 units of housing in Boston and houses about 27,000 people under the public housing program. Residents pay approximately 30 to 32 percent of their gross income toward rent. The BHA also helps provide housing to approximately 25,000 people under their rental assistance program. This program administers approximately 13,000 rental assistance vouchers that enable families to rent houses or apartments in the private market and apply a rental subsidy to their rent. With this assistance, residents are able to pay approximately 30 to 40 percent of their income toward rent, with the BHA paying the remainder (Meneses, 2013).

Key Player: BPHC

The mission of the BPHC, the city's health department, is to protect, preserve, and promote the health and well-being of Boston residents, particularly those who are most vulnerable. BPHC works with academic medical centers, community health centers, and government and community agencies and leaders to plan health policy, conduct research, and provide residents with access to health promotion and disease prevention. Core activities include communicable disease surveillance and control, maternal and child health monitoring, substance abuse counseling, homeless services, environmental health monitoring, and emergency medical services. With an operating budget of slightly less than \$70 million, BPHC operates many public and community health programs, employs 1,200 staff, and receives more than \$20 million in annual federal, state, and private grant funding. Within BPHC, the Bureau of Child, Adolescent and Family Health, Division of Early Childhood and Family Health is home to the perinatal programs (Boston Healthy Start Initiative and Healthy Baby/Healthy Child) that work directly with women to support healthy pregnancy and birth outcomes (Allen, 2013).

Historical Factor: Focus on Pregnancy, Birth Outcomes, and Disparities at BPHC

Persistent health inequities are a primary target for BPHC activities. Disparities specifically in perinatal³ health have been an ongoing focus of BPHC programs and initiatives. Despite concerted

³ The perinatal period commences at 22 completed weeks (154 days) of gestation and ends at 7 completed days after birth (WHO, n.d.).

efforts to increase access to and engagement in high-quality, culturally appropriate prenatal care, premature births, the major contributor to infant mortality and developmental disability, remained highest in Boston's Black community (BPHC, 2009, 2011b). The BPHC health equity plan developed during 2010 and 2011 placed a new emphasis on decreasing disparities in birth outcomes. The first of the new health equity goals was to reduce the LBW rate among Boston infants by reducing the gap between the White and Black LBW rate by 25 percent. Public health leadership believed that achievement of these goals could make a significant difference in improving the health and well-being of the city's most vulnerable children and families.

BPHC had in place two major programs designed to combat birth outcome disparities before HSiH: the federally funded Boston's Healthy Start Initiative (BPHC, 2012) and its Healthy Baby/Healthy Child home-visiting program (BPHC, 2011a). The federally funded Boston Healthy Start Initiative seeks to address disparities in perinatal health by ensuring that pregnant and postpartum⁴ Black women and their infants receive high-quality care. It provides case management, health education and interconceptional care at neighborhood health centers and community-based agencies. The program recruits women during pregnancy and follows the family for up to 2 years postpartum. Healthy Baby/Healthy Child is a home-visiting program designed to promote positive birth outcomes and family unity to pregnant and parenting families with a child less than 5 years old. Public health nurses, advocates, and social workers help prepare parents for healthy deliveries and successful parenting within the scope of their own culture and language. Frontline staff from these programs consistently identified housing instability as one of the biggest issues facing their clients and one that their programs were unable to affect.

Historical Factor: Boston's Housing Market

Rental vacancy rates have continued to fall in Boston since the spring of 2010. In 2011, only 4.4 percent of rental stock was vacant, a 9-year low (Bluestone and Billingham, 2011). This limited rental market created an upsurge of rental prices. Between 2011 and 2012, the average monthly rent in Boston jumped more than 7 percent to nearly \$1,900, making the city's rental housing market the fifth most expensive in the country and the third most expensive for a metropolitan city (Adams, 2012; Bluestone and Billingham, 2011). For many, especially low-income families, these increasing rents present an untenable living situation and threaten housing stability.

Historical Factor: Homelessness Policy and the Organization of Homeless Services

In Boston, two agencies play key roles in addressing homelessness: BHA, with its provision of housing units, and the Emergency Shelter Commission, which is responsible for coordinating interagency strategic planning, public policy advocacy, and services for constituents who may be at risk of, or experiencing, homelessness. Two recent changes in the city's housing environment created the conditions that supported the development of HSiH. First is the shift in homelessness policy from a "housing first" approach that focused on the specific problems of adult chronic homelessness (Greene, 2013) to a supported housing approach that provides more comprehensive services and addresses specific housing needs of special populations (for example, veterans and people with HIV/AIDS, substance abuse issues, and mental illness). This new approach, which

⁴ The postpartum period refers to the period immediately after delivery (WHO, 2010).

was implemented in 2008, aims not only to create more stable living environments for vulnerable populations, but also to reduce use of high-cost medical care. Pregnant women who have existing medical risks associated with poor birth outcomes were not initially identified as a special population. Providing priority access to housing to this vulnerable group is consistent with the approach, however. Second, changes in the organizational structure of homeless services played an important role in the creation of HSiH. In 2010, the city's Emergency Shelter Commission was reorganized to fall administratively under the responsibility of BPHC, recognizing the close connection between housing and health. It had previously resided in the Mayor's Human Services Cabinet. As important, its offices moved to a new physical location on the same city block as the BPHC in 2011. This restructuring increased the interactions between the city's public health leadership team and Emergency Shelter Commission staff. It enabled them to play an important bridging role in promoting BHA awareness of an interest in the issue of homelessness among pregnant women.

Chronology of Events

The following section describes the chronology of events, beginning in the spring of 2011 and ending in the fall of 2012, which supported the collaboration between the BHA and BPHC and led to the implementation of HSiH. This information is summarized in exhibit 2.

Establishing the BHA-BPHC Partnership: Spring of 2011

The first concrete steps toward developing HSiH occurred in the spring of 2011. In a meeting with the Executive Director of BPHC, the Director of the Emergency Shelter Commission raised the idea of a program to address housing instability and birth outcome disparities based on experience with supported housing interventions. Provision of supported housing and case management was being used to improve health outcomes among other vulnerable populations, but it was a novel strategy to achieve the BPHC's goal of reducing birth outcome disparities. The Executive Director of BPHC requested a meeting with senior BHA leadership to discuss the topic. Less than a month later, the directors of BPHC and the Emergency Shelter Commission met with senior leadership at BHA to propose the idea of an interagency program to address housing instability among women with high-risk pregnancies. The BHA warmly received the proposal and offered to give prioritized placement to 75 eligible women in their traditional family housing developments, effectively bypassing multiyear waitlists for subsidized housing and moving women to the top of the list for the type of housing unit for which they qualified. In turn, BPHC would provide staff to deliver intensive case management services to program participants. These staff would not only link women to services such as food stamps and health insurance but also provide the needed support to maintain stable tenancy, thereby supporting one of BHA's objectives.

HSiH Program Planning: Summer of 2011

During the summer of 2011, BPHC program staff met with BHA to solidify program details and administrative protocols. The BHA began drafting an official MOA; the BPHC established program parameters and eligibility criteria. Planning for HSiH progressed quickly, largely because of the ability of the agencies to draw from existing resources and avoid the need for new funding. BPHC turned to its existing perinatal programs and created a dedicated unit within Healthy Baby/Healthy Child home-visiting program to implement HSiH. The Healthy Baby/Healthy Child program has a

Exhibit 2

Chronology of Events

Historical factors	<p>Persistent health inequities are a primary target for BPHC activities. Birth outcome disparities persist despite BPHC programs aimed to improve prenatal care.</p> <hr/> <p>2008: Integrated housing and support services become focus of homelessness initiatives in Boston.</p> <hr/> <p>2010: Emergency Shelter Commission reorganized under BPHC.</p> <hr/> <p>2010: Bureau of Child, Adolescent and Family Health at BPHC incorporated Life Course Theory into its mission statement.</p> <hr/> <p>2010–2011: New BPHC strategic plan developed. Identified improving birth outcomes and reducing racial disparities in low birth weight as the first of three key public health priorities.</p> <hr/> <p>Director of Emergency Shelter Commission proposed the idea of a program to address dual goals of homelessness and birth outcome disparities to the Executive Director of BPHC.</p> <hr/>
Spring of 2011	<p>Executive Director of BPHC requested a meeting with senior BHA leadership.</p> <hr/> <p>Directors of BPHC and Emergency Shelter Commission met with senior leadership at BHA to propose idea of interagency program to address housing instability issues for women with high-risk pregnancies.</p> <hr/> <p>Proposal was immediately accepted and planning for HSiH began.</p> <hr/> <p>Executive Director of BPHC met with Director of Child, Adolescent and Family Health at BPHC, who met with other BPHC perinatal program staff to discuss possible parameters and eligibility criteria.</p> <hr/>
Summer of 2011	<p>MOA developed by BHA legal department with input from BHA leadership and program staff for the new collaborative program.</p> <hr/> <p>BPHC program staff met with BHA periodically throughout summer to solidify program details and administrative protocols.</p> <hr/> <p>Additional collaborators brought in. City of Boston's Department of Neighborhood Development contacted to provide housing application training for HSiH case managers.</p> <hr/> <p>Boston University School of Public Health provided additional training for case managers and evaluation services for HSiH.</p> <hr/>
October 2011	<p>First group of HSiH participants enrolled.</p> <hr/>
November 2011	<p>Mayor officially announced HSiH program at press conference.</p> <hr/>
December 2011	<p>MOA between BHA and BPHC finalized.</p> <hr/>
October 2012	<p>Year 1 of HSiH completed. 38 HSiH participants successfully placed in BHA housing.</p> <hr/>

BHA = Boston Housing Authority. BPHC = Boston Public Health Commission. HSiH = Healthy Start in Housing. MOA = memorandum of agreement.

full-time staff of about 46 and serves 1,000 clients at any one time with a yearly budget of approximately \$3.9 million. The new HSiH unit oversees eligibility screening and enrollment and is responsible for delivering a newly designed model of services tailored to homeless and housing-insecure pregnant women. HSiH eligibility criteria were designed to meet BHA housing requirements and identify women at risk for a poor birth outcome. To be eligible, women need to be pregnant at the time of referral, have a Boston address as their last known residence, be homeless or at risk for homelessness based on HUD definitions, and have an established medical risk for, or a previous history of, a poor birth outcome. Unlike other perinatal case management programs in

which participation is optional, to be eligible for priority access to housing, women were required to sign a contract affirming their intent to comply with all HSiH requirements, including ongoing participation in intensive case management for 12 months. HSiH case managers also received special training to work with HSiH clients. The city's Department of Neighborhood Development provided educational sessions that focused on the specific barriers that homeless populations face and the unique challenges that can arise when working with them, BHA staff provided training on how to complete the lengthy and detailed housing application, and collaborators from the Boston University School of Public Health provided training to implement a case management approach that integrated motivational strategies within a standardized curriculum designed to build participants' problem-solving skills.

HSiH Implementation: Fall of 2011–Fall of 2012

The fall of 2011 brought HSiH to fruition. Although the MOA was not officially completed until December, by October the first potential HSiH candidates enrolled in the program and began the processes of applying for BHA housing with their HSiH case managers. In November 2011, the Mayor of Boston, Thomas Menino, held a press conference to officially announce HSiH along with the new Boston Task Force on Improved Perinatal Clinical Care (City of Boston Mayor's Office, 2011). The press conference and project launch received front-page coverage in the *Boston Globe*, the city's largest daily newspaper (Lazar, 2011). During this period, program staff from BPHC and BHA continued to communicate regularly to improve procedures related to completing and processing housing applications. At the 1-year evaluation point in October 2012, HSiH had successfully placed 38 HSiH participants in BHA housing. The program is ongoing and continues to enroll new participants. Detailed results of the first year implementation, including the number of women referred, the number who were eligible, the number who completed the BHA application process, and the number placed in housing, are described elsewhere (Allen, Feinberg, and Mitchell, 2013).

Major Processes and Factors That Influenced the Actualization of HSiH

From the analysis of case study data, we identified three factors that were instrumental in developing and maintaining the collaboration between BHA and BPHC, and we identified three factors that presented challenges to the effective implementation of HSiH.

Mutual Benefit and Well-Aligned Objectives

First and foremost, HSiH offered a mutual benefit to the BHA and BPHC and was designed to achieve pre-existing objectives of the respective organizations.

The proposal was matchmaking that aligned the strengths of the MCH (maternal and child health) work of the [BPHC] with the housing stock and the need for some supported housing of the BHA.

—Emergency Shelter Commission, key informant

BPHC and their clients benefited from the access to reserved BHA housing units. Unmet housing need of low-income minority mothers and the detrimental effect of unstable housing on maternal and child health outcomes was a key concern for the BPHC. Thus, the HSiH collaboration enabled the BPHC to better serve its clientele and work toward their public health objective of reducing racial birth outcome disparities and supporting women's health across the lifespan.

For the mother it becomes an interconceptional⁵ intervention, looking forward to the next pregnancy. For the child, it means starting life not homeless or in very unreliable housing ... you can consider this asthma prevention, obesity prevention. So it's really this global goal of improved long-term health.

—BPHC, key informant

The BHA also benefited from the supports provided to HSiH participants. On the average, more than 20 percent of BHA's residents have a balance due at the end of each month, highlighting the challenge of stable tenancy. HSiH case managers meet with participants to complete and implement a family development plan that includes goals related to personal development. In addition, case managers deliver a problem-solving intervention weekly specifically guided to increase self-efficacy regarding issues around housing and economic self-sufficiency. Because HSiH case managers continue to meet with their clients after they have been housed, the HSiH case managers serve as an additional point of contact that BHA can access if difficulties arise about the course of a tenancy.

About 75% of all the new admissions are homeless families with no support ... and their tenancies are difficult to maintain because people are housed but that's just one piece and the support system is not there ... it's the same parents we are going to be helping anyway but they will have some support system and help them continue their tenancy and continue improving other personal needs.

—BHA, key informant

BHA considered this added support from HSiH case management as a significant contribution to their goal of providing stable housing for low-income Boston residents and to “serve as catalysts for the transformation from dependency to economic self-sufficiency” (BHA, 2013a).

Excellent Working Relationship Built on Years of Previous Collaboration

The second key factor that contributed to the successful development of HSiH was the excellent working relationship between the BPHC and BHA. All key informants spoke highly of their collaborators from other agencies.

The folks at BHA, they have been very committed to the process.

—BPHC, key informant

They [BPHC] are great, they are keeping up with everything and they do their follow up and it's awesome compared to other programs. With them we don't have to worry because they are on top of their game.

—BHA, key informant

This positive relationship was built on years of previous collaboration between BHA and BPHC and a shared commitment to serving vulnerable Boston residents. An example of a previous collaboration is Breathe Easy at Home, a multiagency collaboration that strives to improve communication about asthma management through the efforts of local health providers, public health agencies, housing agencies, and nonprofit organizations (City of Boston, 2013).

⁵ The interconceptional period is the time between the conception of one child and the conception of a subsequent child. More simply, it is the time between pregnancies.

The housing authority and the public health commission have really a long history of partnering on a lot of different kinds of programs and initiatives. Since we've worked together on so many projects over a decade or more, we think about them as partners and they think about us as partners ... these kinds of collaborations are natural outgrowth of the stuff we have done in the past.

—BHA, key informant

Dual Role of LCT: Motivation and Shared Framework for Program Success

LCT was not only a motivating factor but also a common framework that was vital to the development of HSiH, and it strengthened the agency's commitment to HSiH goals. For the BPHC, LCT is recognized as an integral part of their approach to public health work outlined in their mission statement, including "the critical impact of social factors and conditions on health," and, "the cumulative impact of life experience on the health of individuals, families, and communities" (BPHC, 2013). The potential for a social determinant, such as housing, to affect multiple health outcomes, and perhaps multiple generations, provides the rationale for reserving precious BHA housing resources for this specific population. Indeed, LCT was explicitly part of the HSiH program model. HSiH thus adheres to BPHC's approach and serves as an excellent example of LCT in practice.

[HSiH] was presented as an explicit part of Life Course Theory. The rationale for it was that there are lots of deserving groups that could be sent to the top of the list for housing but the view of putting mothers to the top of the list is that you have the potential to have impact on two generations maybe even three... the ability to make the case that this bears this special fruit that you don't get with any other people with whom you might intervene was very important.

—BPHC, key informant

LCT has not been an explicit conceptual framework for BHA's work in the past. Early in the development of this project, however, BPHC invited BHA staff to participate in the Partnership to Eliminate Disparities in Infant Mortality—Action Learning Collaborative. Boston serves as one site for this national learning collaborative. The Partnership to Eliminate Disparities in Infant Mortality—Action Learning Collaborative workshop introduced BHA staff to LCT concepts and broader discussions about the effect of racism, discrimination, and poverty within that framework.

That really cemented the relationship because it grounded it in a kind of mutual, a shared vocabulary about stress and why we wanted to do this so much why this was so important.

—BPHC, key informant

Need for Accurate Dissemination of Program Information and Rationale

The greatest challenges to implementing HSiH were not issues related to collaboration, but with effectively integrating the program and explaining its specific purpose to the greater landscape of homeless services in Boston. Although BHA has set a precedent for providing housing or other preferential treatment to specific subpopulations—for example, people displaced because of a disaster and people who are experiencing domestic violence (BHA, 2013b)—preferential treatment has never been extended to pregnant women, as a specific subpopulation. An initial challenge came from within the larger network of homelessness advocates in Boston. For these organizations,

the rationale for including women who were not currently homeless but were at high risk for homelessness was not clear. Some believed that scarce resources should be devoted to those in the direst housing situations. The Emergency Shelter Commission, which had a long history of working with homeless advocates, played a key role in explaining the rationale for including high-risk pregnant women who were at risk for homelessness in the eligible pool of HSiH participants. As the Director of the Emergency Shelter Commission explained, “Hopefully housing stability [can be seen] as a clinical consideration in the birth outcomes and health outcomes for MCH [Maternal and Child Health populations].”

Difficulty in Assessing BHA Eligibility at Program Entry

Another challenge was related to the extremely high value that permanent, stable housing has in the lives of low-income, pregnant women. A number of women who were in very stressful housing situations chose to go through the screening and application process despite not meeting BHA’s eligibility requirements such as Boston residency and criminal background checks. These women were initially thought to be eligible but later were found to be ineligible upon final BHA review. BHA denial was difficult for HSiH case managers who devoted considerable time to assisting clients with housing applications; they understood the effect of housing stress on their clients’ lives. The effect of their application denial was magnified because of the absence of other housing options. To address this problem, training sessions that explicitly lay out BHA regulations were developed to train BPHC staff. Yet, women’s motivation to secure a safe and stable environment for themselves and their children makes this a recurrent issue and demonstrates the importance of the program and the need to develop creative solutions to support at-risk women who may not be eligible for traditional public housing programs.

Need for Increased Efficiency in Housing Placement

Other challenges have centered on increasing program efficiency in housing placements. The time from program referral to housing placement needs to be shortened to have maximal effect on birth outcomes. Because the average time to housing placement was 5 months, some women were not established in permanent, stable housing until after their child was born. Collaborative performance-improvement strategies that leverage the strength of the partnership may help the agencies further streamline the housing application and review process.

Lessons Learned

The implementation of HSiH and its explicit focus on healthy birth outcomes is an example of putting HiAP into action. It can serve as a model for other cities and states that wish to pursue similar strategies. The HiAP framework has grown out of the recognition that to achieve real gains in population health, health considerations must be integrated into policymaking and program development across sectors. The BPHC, in collaboration with the BHA, used this framework to promote healthy birth outcomes within the context of housing policy, potentially improving child health outcomes and generating cost savings by decreasing premature and LBW births.

Successful collaborations are essential to the implementation of HiAP. As such, the literature on interorganizational relationships (IORS) provides a structure to elevate the specific lessons learned

from the implementation of HSiH to more generalizable principles that could guide other agencies that want to adopt the HiAP framework. IOR theory supports the idea that collaboration leads to a more comprehensive coordinated approach to persistent complex issues (Glanz, Rimer, and Viswanath, 2008). Several factors promote IOR formation, including three constructs that were integral to HSiH's implementation and would be applicable to other similar endeavors: recognition of the need for interdependence, proven success in previous collaborations, and clear and mutually shared goals (Glanz, Rimer, and Viswanath, 2008; Oliver, 1990).

Recognition of the Need for Interdependence and Presence of Available Resources

For cross-sectorial collaborations to be successful, agencies need to believe that they will accrue direct benefits through collaboration (Rigby, 2011). In HSiH, both agencies believed that they could advance program goals that they had not been successful in achieving alone. For the BHA, maintaining stable tenancy among families with young children has been a persistent issue; for the BPHC, improving birth outcomes has been a long standing but difficult to obtain goal. After a clear benefit from the collaboration has been established, at least one member of the IOR must agree to divert some of their resources to the effort. The collaboration between the BHA and BPHC was supported by the agencies' ability to draw from each other's existing resources and avoid the need for new funding, a common challenge in cross-agency collaborative policy (Rigby, 2011).

Proven Success in Previous Collaborations

The role of previous collaboration in successful IOR formation is important because it is often through these well-established networks that agencies judge the trustworthiness and value of potential partners (Bryson, Crosby, and Stone, 2006; Glanz, Rimer, and Viswanath, 2008). BHA and BPHC's collaboration on programs such as Breathe Easy at Home made the HSiH collaboration a relatively smooth process and contributed to its success. For agencies without such a history of previous collaboration, developing the relationships and procedures needed to build consensus may prove challenging (Glanz, Rimer, and Viswanath, 2008). In this setting, partnerships are more likely to emerge incrementally with informal arrangement that do not require higher levels of trust (Bryson, Crosby, and Stone, 2006).

Clear and Mutually Shared Goals

The HiAP framework requires that agencies that have missions unrelated to health understand how their activities affect the health of their constituents. Providing agencies in nonhealth sectors the opportunity to recognize the health effect of their work is an important and replicable strategy that can be used to build mutually shared goals (Rigby, 2011). By inviting the BHA to participate in the Partnership to Eliminate Disparities in Infant Mortality—Action Learning Collaborative, the BPHC did exactly that. Learning about LCT helped BHA staff understand the relationship between housing stress and birth outcomes and strengthened their commitment to the HSiH collaboration. Establishing mutually agreed-upon goals was not difficult for the BHA and BPHC. Rather, the challenge has come from the processes required to reach those goals. BHA housing regulations, most often the 3-year residency requirement and the precise definition of homelessness, prohibited pregnant women with medical risk and high levels of housing stress from obtaining housing through the program. This type of challenge—arising from differing eligibility standards across organizations—

has been particularly difficult in collaboration involving governmental agencies that have little flexibility to change program rules (GAO, 2000). An understanding of potential tensions and an agreement from the start regarding program eligibility rules can help mitigate this issue.

Conclusion

This case study of the Healthy Start in Housing program illustrates a successful collaboration between a local public health agency and a public housing authority. It provides insight into how two diverse stakeholders united around an innovative policy to address a longstanding public health problem and improved their ability to meet agency-specific objectives. This successful collaboration was predicated upon recognizing the need for interdependence, having clear and mutually shared goals, and having a history of working together on other projects. We hope that this case study will encourage replication of programs similar to HSiH. Evaluation of the outcomes of women participating in HSiH is planned and will provide valuable information about program effects.

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