

# Partnering to Leverage Multiple Data Sources: Preliminary Findings from a Supportive Housing Impact Study

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This article presents preliminary findings from an impact study that drew upon administrative data collected by city agencies and data collected by a supportive housing program for young adults who are aging out of foster care, homeless, or at risk of homelessness. Participation in the program was associated with a reduction in shelter use and jail stays during the two years after program entry. The study demonstrates the benefits of collaboration and the possibilities of using administrative data from multiple public agencies to evaluate program impacts on young adult outcomes.

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This article presents preliminary findings from an impact study that drew upon administrative data collected by multiple city agencies and data collected by a supportive housing program for young adults who are aging out of foster care, homeless, or at risk of homelessness.<sup>1</sup> The study was made possible by a close partnership between New York City's Center for Innovation through Data Intelligence (CIDI), within the Office of the Deputy Mayor for Health and Human Services; and Good Shepherd Services (GSS), a multi-service organization. Public system use and benefit receipt among program participants were compared to public system use and benefit receipt among a closely matched sample of non-participants. Participation in the program was associated with a reduction in single adult shelter use and jail stays during the two years after program entry even after controlling for other factors. Equally important, the study demonstrates the benefits of collaboration among key stakeholders and the possibilities of using administrative data from multiple public agencies to evaluate program impacts on important cross-sector outcomes for young adults who are aging out of foster care, homeless, or at risk of homelessness.

## Background

### *Chelsea Foyer at the Christopher*

The Chelsea Foyer at the Christopher ("the Foyer") is a single-site, supportive housing program in New York City developed by GSS for young people between the ages of 18 and 25 who are aging out of foster care, homeless or at risk of homelessness. Based on a UK model that has been successful in reducing youth homelessness, the Foyer was launched in 2004 to test the model's viability in the United States and to help address the growing problem of homelessness among former foster youth in New York City (Browne, Newton, O'Sullivan, & Smith, 2006).

The Foyer provides up to two years of transitional housing in conjunction with GSS's strength-based Youth and Family Development

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<sup>1</sup> This research was supported by the Larson Family Foundation.

framework<sup>2</sup> and the trauma-informed Sanctuary Model<sup>®3</sup> to prepare young people for stable housing and economic self-sufficiency. Participants work with a case manager and independent living specialist to develop an individualized “action plan” outlining educational/vocational, career, money management, housing, health/wellness and personal goals, and the steps needed to achieve them. Key components of the program include psychosocial support, community building, life skills development, educational/vocational services, help securing stable housing, and aftercare.

### *The Need for Supportive Housing Interventions*

A study of foster care youth in New York City found that 22% of youth who exited care at age 16 years or older entered a homeless shelter within ten years after their exit (Park, Metraux, Brodbar, & Culhane, 2004). Subsequent studies examining the prevalence of homelessness during the transition to adulthood among former foster care youth are consistent with the findings of this early study (Dworsky, Dillman, Dion, Coffee-Borden, & Rosenau, 2012). Estimates of homelessness among this population range from 11% to 36% (Brandford & English, 2004; Reilly, 2003).

Without intervention, homeless youth are at risk of poor outcomes across a variety of domains including education and employment (Baron & Hartnagal, 1997; Cauce et al., 2000; Ferguson, Xie, & Glynn, 2012). They may engage in risky subsistence strategies, including selling

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<sup>2</sup> GSS applies a consistent framework of eight youth and family development principles across all its programming: (1) An organizational structure that is supportive of youth and family development; (2) focused attention on key environmental factors; (3) a holistic approach to youth and families; (4) opportunities for contributions; (5) caring and trusting relationships; (6) high expectations; (7) engaging activities; and (8) factors that promote continuity for youth and families in the program. These principles are informed by empirical evidence of effective strategies to mitigate the impacts of poverty and improve social mobility. This research highlights the transformational impact of enhancing developmental opportunities and building on participants' existing competencies.

<sup>3</sup> The Sanctuary Model is a comprehensive approach to developing a trauma-sensitive culture in which psychological and social trauma can be addressed and resolved. Evidence-supported and grounded in social psychiatry, trauma theory, therapeutic community philosophy, and cognitive-behavioral approaches, the model helps participants heal from trauma and begin to feel safe and supported. The Sanctuary Model consists of two key components: the creation of a therapeutic milieu designed to help participants develop healthy attachments and psycho-education geared toward emotional, social, cognitive and behavioral recovery from trauma.

drugs, stealing, and sex work in order to secure money, food or temporary shelter (Gaetz & O'Grady, 2002; Rosenthal & Moore, 1994). These behaviors put them at risk of arrest and incarceration (Levin, Bax, McKean, & Schoogen, 2005). Homeless youth are also at increased risk of a range of physical and mental health conditions, including HIV/AIDS, tuberculosis, diabetes, hepatitis, substance abuse, anxiety disorders, post-traumatic stress disorder, depression, and suicide (Cauce et al., 2000; Gomez, Thompson, & Barczyk, 2010; Whitbeck, Hoyt, Yoder, Cauce, & Paradise, 2001).

### **Investigating the Impact of the Foyer Model as a Supportive Housing Intervention**

Supportive housing programs that combine housing and targeted services have been shown to be a promising intervention for a variety of at-risk populations. Several studies have concluded that providing chronically homeless individuals with permanent supportive housing produces net savings. For example, a study in Los Angeles found that it saved the city approximately \$20,000 per year in substance abuse, physical and mental health, criminal justice, and housing costs to place a chronically homeless person in permanent supportive housing for two years (United Way, 2009). Another study found reductions in hospitalization, incarceration, and emergency shelter use among homeless individuals with severe mental illness in New York City placed in supportive housing (Culhane, Metraux, & Hadley, 2002).

More recently, an evaluation of a supportive housing program in New York City for a variety of at-risk populations, including youth, found that supportive housing was associated with a net savings of \$10,100 in the first year that individuals were housed and, among youth specifically, with reductions in emergency shelter use, jail stays, state psychiatric hospitalizations, and Medicaid costs (Levanon Seligson, et al., 2013). Although these studies suggest that supportive housing programs can improve outcomes and produce significant cost savings, prior evaluations have not focused on specialized supportive housing

models like the Foyer that are specifically tailored to address the needs of young adults.

Since 2006, GSS has used a customized version of Efforts to Outcomes (ETO<sup>®</sup>) electronic database to capture Foyer participant data for performance management. An analysis of these data found that 86% of the participants discharged between July 1, 2006 and June 30, 2014 moved to permanent housing. Sixty-two percent were employed and 79% had health insurance at the point of exit. In addition, 38% of the participants who entered the program without a high school diploma or GED had one of these credentials by the time they exited.

Although these are promising results, GSS recognized that additional data and a rigorous evaluation design were needed to assess the impact of their program on a broader range of youth outcomes. This led to a strategic partnership between GSS and the Center for Innovation through Data Intelligence (CIDI), an interagency data analytics center that has access to identified administrative data from New York City's health and human service agencies.<sup>4</sup>

## Current Study

The current study leveraged administrative data from New York City's health and human service agencies, as well as program data from GSS, to assess the impact of participation in the Foyer's supportive housing program on public system use and benefit receipt. Using administrative data rather than self-reported data collected from participants as part of an aftercare survey had several advantages. First, it allowed us to measure a wider range of participant outcomes across multiple sectors and over a longer period of time. Second, we avoided the problem of sample selection bias that can result when the participants from whom outcome data are collected are not a random sample. And third, we were able to construct a comparison group of closely matched non-participants.

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<sup>4</sup> CIDI convened a workgroup of CIDI, GSS, NYC health and human services staff, and child welfare consultants to meet monthly during the design and data analysis stages of the study to help define the comparison group and assess the availability and quality of the data.

## Methods

This study used a quasi-experimental study design to compare the outcomes of individuals who participated in the Foyer supportive housing program between 2006 and 2012 (i.e., “Foyer participants”) to the outcomes of a comparison group constructed from administrative data. The comparison group consisted of individuals who applied for supportive housing through the New York/New York III (NY/NY III) supportive housing agreement and were found eligible for the program under Population I (i.e., young adults between the ages of 18 and 25 who aged out of foster care), but were not placed in supportive housing through the program.<sup>5</sup> We chose this as our comparison group for two reasons. First, 14 of the Foyer’s 40 beds are reserved for young adults referred from NY/NY III under Population I. Second, approximately half of the Foyer participants had a history of foster care placement, and many of those who had no foster care placement history have similar characteristics and family backgrounds.

The comparison group was constructed using 2:1 nearest neighbor propensity score matching with replacement and caliper restraint. Foyer participants were matched to individuals who applied for supportive housing through NY/NY III on gender, age, race/ethnicity, educational attainment and public system use two years prior to their “start date.” This was defined as the date of entry into the Foyer (for Foyer participants) or the first date of eligibility for supportive housing (for the comparison group). The groups were also matched on approximate start dates to account for contextual factors, such as changes in policy that may impact service use. This resulted in a total sample size of 297, with 138 individuals in the Foyer participant group and 159 individuals in the comparison group. The comparison group data were weighted in the analyses to account for the fact that the same comparison group member could be matched to multiple Foyer participants.

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<sup>5</sup> NY/NY III is an agreement between New York City and New York State to create 9,000 units of supportive housing for homeless individuals over ten years. It specifies nine populations eligible to receive supportive housing, including those in Population I.

Demographic data were obtained from the GSS Efforts to Outcomes (ETO®) database for the Foyer participants and from the New York City Human Resources Administration/Department of Social Services' (HRA/DSS) Office of Health and Mental Health Services/Placement, Assessment and Client Tracking Unit (OHMHS/PACT) database, which tracks NY/NY III application data, for the comparison group. Administrative data on public system use and benefit receipt were obtained from the following sources: the New York City HRA (cash assistance and SNAP benefit receipt, Medicaid use), the New York City Department of Homeless Services (stays in single adult and family shelters), and the New York City Department of Correction (jail stays). The administrative data were matched to the Foyer participant data and NY/NY III comparison group data based on first name, last name, date of birth, and, where available, Social Security number using deterministic and probabilistic matching algorithms.

Administrative data were used to measure public system use and benefit receipt during two time periods. The first time period was two years from the individual's "start date" (defined above). This time period was chosen to examine differences in public system utilization between groups while participants were eligible for the program and residents can live in the Foyer for up to two years.<sup>6</sup> The second time period was one year from the individual's "exit date." This was defined as the date of exit from the Foyer (for Foyer participants) or the first date of eligibility for supportive housing + the mean program duration for Foyer participants who entered the Foyer in that year (for the comparison group). This time period was chosen to examine post-exit differences in public system use and benefit receipt between the groups.

Chi-square tests were used to determine whether differences in public system use or benefit receipt between the Foyer participant and comparison groups were statistically significant. When statistically significant differences were found, modified Poisson regression models

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<sup>6</sup> 12.7% percent of participants remained in the program for a full two years and the mean program duration for the Foyer participant group was 15 months.

with robust standard errors were estimated to calculate risk ratios controlling for prior public system use and demographic characteristics. Because the outcomes measured are not considered rare (<10%) in our sample, risk ratios calculated using Poisson regressions provide a more interpretable measure of risk than conventional odds ratios (Deddens & Petersen, 2008).

## Results

### *Demographics and Prior Public System Use or Benefit Receipt*

No statistically significant differences were found between the Foyer participant and comparison groups in terms of race, gender, age, or high school graduation. However, because the Foyer program began before NY/NY III, individuals with start dates in the year 2006 and 2007 were almost exclusively Foyer participants. Additionally, Foyer participants were significantly more likely to have used Medicaid within the two years prior to their start date than non-participants in the comparison group (59% vs 48%). This is the only statistically significant difference in prior system use or benefit receipt between the groups that was found.

### *Outcome Period 1: Two Years after Start Date*

During the two year period after their start date, Foyer participants had significantly lower rates of single adult shelter use (16.7% versus 28.9%,  $p = 0.013$ ) and jail stays (6.5% versus 16.4%,  $p = 0.009$ ) than non-participants in the comparison group. Foyer participants also had lower rates of family shelter use (5.8% versus 11.9%) and cash assistance use (26.8% versus 36.5%), higher rates of SNAP use (76.8% versus 69.8%), and similar rates of Medicaid use (75.4% versus 77.4%). However, none of these differences reached statistical significance.

### *Outcome Period 2: One Year after Exit Date*

During the one-year period after their exit date, Foyer participants had lower rates of single adult shelter use (8.7% versus 12.6%), family



shelter use (6.5% versus 9.4%), and jail stays (5.8% versus 10.1%) than non-participants in the comparison group. However, none of these differences reached statistical significance. Rates of Medicaid, SNAP, and cash assistance use were similar between the two groups (56.5% versus 61.6%; 71.0% versus 70.4%; 21.0% versus 23.3%).

### *Regression Analyses*

Estimates from the Poisson regression models indicated that participation in the Foyer program was associated with a reduction in the relative risk of single adult shelter use and jail stays during the first outcome period (i.e., two years after the start date). Specifically, Foyer participants were 36% less likely to have a stay in the single adult shelter system (RR = 0.64, 95%; CI = 0.42-0.97) and 55% less likely to be jailed (RR = 0.45, 95%; CI = 0.26-0.78) than non-participants in the comparison group.

Unlike Foyer program participation, which was found to be a protective factor, prior adult shelter use and jails stays were found to be risk factors. Single adult shelter use during the two years prior to the start date was associated with an increase in the relative risk of single adult shelter use (RR = 6.9, 95%; CI = 4.4-11.1) and jail stays during the two years prior to the start date was associated with an increase in the relative risk of jail stays (RR = 5.3, 95%; CI = 2.8-10.0) during the first outcome period. In addition, being male was associated with an increase in the relative risk of jail stays two years after the start date (RR = 3.5, 95%; CI = 1.7-7.1).<sup>7</sup>

### *Limitations*

Like any study, this evaluation has limitations that should be acknowledged. First, both the small size of the Foyer participant sample and the one-year post-exit follow up period, during which both public

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<sup>7</sup> Because no significant differences in public system use or benefit receipt were found during the second outcome period, no regression analyses were performed.

system use and benefit receipt were low, may have reduced our ability to detect statistically significant differences between the groups. Second, when sample data are matched against system-wide datasets, matches may be missed or records may be incorrectly matched due to data entry errors and/or missing information (such as Social Security numbers). Third, several important outcomes could not be measured because the relevant data were not available for the entire sample in some years. Examples include juvenile justice system involvement, probation, and use of runaway and homeless youth shelters. Additionally, because New York City agencies do not maintain data on adult education or employment, the current study could not measure those outcomes even though they are a central focus of the Foyer program. Finally, the Foyer participant and comparison groups were constructed from two separate data sources. Only observable characteristics for which the two groups had comparable data could be used for matching purposes, and variable definitions across datasets were inconsistent at times. Although most variables could be collapsed in such a way that they were comparable, mental health diagnosis indicator variables differed too much to be included in the matching process. However, a recoded mental health indicator was included as a covariate in regression models to control for any potential differences between the groups.

### **Directions for Future Research**

Further analyses are needed to build upon the preliminary results presented here. For example, public system use and benefit receipt were measured using bivariate indicators. One next step would be to look at public system use duration and benefit amounts. It will also be important to examine the effects of individual program components on specific outcomes as well as the relationship between outcomes and length of stay in the program.

This study measured the average impact of the Foyer across all participants. However, young adults in the program differ in important ways (e.g., gender, race/ethnicity, referral source). More in-depth analyses

are needed to determine whether program impacts vary across groups, and hence, whether certain populations should be targeted.

Future research may also involve the use of other comparison groups, such as residents of other housing programs for young adults, as well as qualitative methods, such as focus groups and interviews with program alumni.

## **Discussion**

The results of the current study have a number of implications. First, prior stays in single adult shelters and jail increased the risk of subsequent stays, even after controlling for other factors. Developing additional supports, including aftercare, for individuals who enter the Foyer with a history of shelter use or justice system involvement may help improve their outcomes.

Second, the lower rates of adult shelter use and jail stays among Foyer participants relative to their comparison group peers point to the benefits, both social and financial, of expanding the availability of programs for young adults based on the Foyer model, not only in New York City but in other locales.

Third, under the NY/NY III Agreement, only young adults who are aging out of foster care or who have a mental illness are specifically eligible for supportive housing according to the definitions of eligible populations. However, the results of this study suggest that supportive housing may benefit other populations of young adults, including those who are homeless or at risk of homelessness.

Finally, this study illustrates how small scale programs run by nonprofit organizations can use administrative data from multiple public agencies to measure participant outcomes beyond program exit without costly longitudinal data collection and construct a matched comparison group to estimate program impacts. However, if this approach is to be used for evaluation and planning, best practice standards must be developed regarding data sharing and confidentiality, comparison group construction, matching techniques and outcome measures.

## Conclusion

As part of an innovative partnership, CIDI and GSS were able to use data from multiple sources to measure the impact of the Foyer's supportive housing program on a range of participant outcomes. Preliminary results from this study provide evidence of the benefits of supportive housing programs for young adults and provide a framework for future program evaluations.

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