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## Exploring Differing Experiences of Homelessness in Hawai'i: Full Report to Stakeholders Part II

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# Exploring Differing Experiences of Homelessness in Hawai‘i: Full Report to Stakeholders Part II

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## Introduction

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Because high rates of homelessness have become a growing concern across the U.S., a number of policies, programs, and strategies have been developed to prevent homelessness and to address the needs of those without a home (Culhane, Park, & Metraux, 2011). As it is unlikely that a one size-fits-all approach to homelessness can be effective, it is important for there to be a wide range of service approaches available to address the issue (Yuan, Vo, & Gleason, 2014). As important is determining how to best target the available services to meet the varied needs of those experiencing homelessness.

Currently in Hawai'i, the range of homeless service programs include emergency shelters, transitional shelters, outreach services, homeless prevention programs, rapid rehousing programs, and permanent supportive housing programs, among others (Yuan, Vo, Gleason, & Azuma, 2016).

- Emergency shelters are facilities that provide temporary (usually less than 1 year) support to those in need of shelter. They vary in terms of rules and requirements (e.g., whether they require sobriety, program fees, etc.).
- Transitional shelters, on the other hand, usually follow a longer program model (up to 2 years) and often have more rules (e.g., sobriety, curfews) and requirements (e.g., classes, a small rent fee, etc.) associated with their programs. Many transitional shelters tend to have a strong focus on serving families with children (Yuan et al., 2014).
- Outreach services are designed to reach unsheltered individuals in order to provide service referrals and material support (e.g., food, hygiene supplies).
- Homeless prevention services and rapid rehousing services are newer programs in Hawai'i. Both provide short-term financial and service support to either keep at-risk individuals housed (homeless prevention) or to rehouse them as quickly as possible (rapid rehousing).
- Finally, permanent supportive housing programs are designed to provide ongoing housing support to individuals who are unlikely to maintain housing on their own. Often these permanent supportive housing programs have eligibility requirements that include having experienced prolonged or repeated homelessness and/or having a disability, substance abuse issue, or mental health problem.

In order to target these services appropriately it is important to gain a deeper understanding of the diversity of characteristics and needs among individuals and families experiencing homelessness in the state. Over the past few decades a number of researchers have attempted to document diversity within homeless populations (e.g., Tsai, Kaspro, & Rosenheck, 2013). The most wellknown attempt was the 1998 study by Kuhn and Culhane, which looked at different service usage patterns among single individuals in emergency shelters in New York City and Philadelphia. This study found that:

- 80% of shelter users had “transitional” patterns of homelessness. These individuals had 1-2 shelter stays of fairly short duration.

- The remaining 20% had higher levels of shelter usage, with the “episodic” group (10%) having many shelter stays of varying duration and the “chronic” group (10%) having fewer stays of fairly long duration.

This way of classifying homeless service users has been incorporated into current federal homeless policy (Kertesz et al., 2005). However, other researchers have argued that while the Kuhn and Culhane (1998) classification system is a useful starting place, more methodologically rigorous approaches could expand upon their ideas and create a better strategy for understanding the diverse ways that individuals move through homeless services (McAllister, Kuang, & Lennon, 2010).

The purpose of this study was to examine diverse patterns of systemwide homeless service usage in the State of Hawai'i. Doing so can help us better understand patterns of prolonged or repeated service use. The overall study was conducted in three stages. It began with interviewing homeless service providers and service users (Stage 1), followed by a statistical analysis of homeless service usage patterns (Stage 2). Finally, preliminary results from both Stage 1 and Stage 2 were presented to the original participants to ensure that the findings made sense based on the real world knowledge of these participants (Stage 3). This Report II focuses on the Stage 2 statistical analysis of service usage.

## Methods

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This study used data from the Hawai'i Homeless Management Information System (HMIS). Access to select information from the HMIS database was granted by the data committee for the Partners in Care and Bridging the Gap Continuums of Care. Most homeless service programs in the state are required to enter their service activities into the HMIS database, including all intake, exit, and encounter information. With this database it is possible to track individual service users over time and across multiple services. The current study used a statistical technique known as latent class growth analysis (LCGA) to sort service users into different subgroups based on their patterns of homeless service usage across time.

The sample for this study consisted of all adults who had entered either emergency shelter or outreach services (gateway services) for the first time at some point between July 1<sup>st</sup>, 2009 and June 31<sup>st</sup>, 2010. These individuals did not have any prior record of HMIS homeless service usage dating back to 2006, when the HMIS recordkeeping system began. The 4,655 individuals who met these criteria were tracked beginning with their first date of entry to services and following them through 4-5 years of service usage, through June 30<sup>th</sup>, 2014.

Individuals were followed across three different service types: 1) emergency shelter; 2) transitional shelter; and 3) outreach services.

- For the emergency and transitional shelter services, the number of days spent in shelter were calculated for every 60-day time interval from first entry through month 36 (3 years).
- The number of days individuals interacted with outreach services was also calculated for each 60-day interval using intake and encounter records.
- Additionally, for each individual a number of demographic, family composition, background experience (e.g. education and employment status), and health characteristics were also available.<sup>1</sup>

Using Mplus (version 7) software, individuals were sorted into groups based on how they used homeless services across time. After individuals were sorted into these groups, we also explored how the groups differed in their demographic, family composition, background experience (e.g., criminal history), and health characteristics. Understanding subgroup differences can help to make sure we are adequately meeting the many different needs seen among those experiencing homelessness in the state. Finally, we also looked at a one-year follow-up period to see if the groups had different rates of year 4 service use (months 37-48). In this study, year 4 service use was used to indicate continued prolonged or return service use.

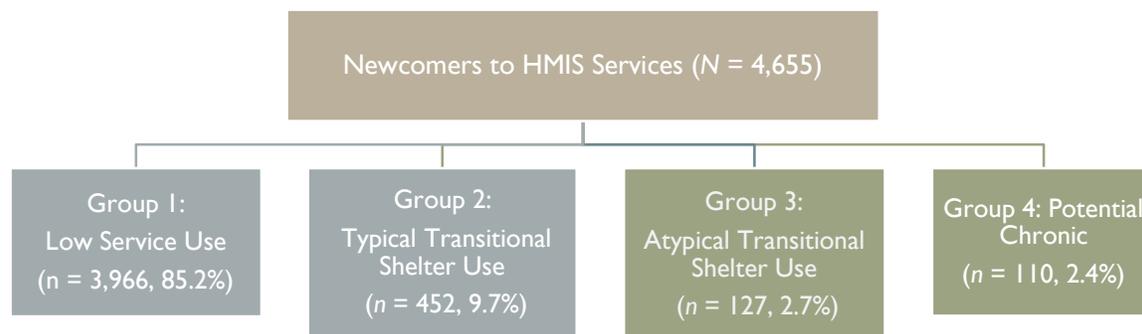
Thirteen participants from Stage 1 (see Part I of this report) were re-interviewed about their reactions to and interpretation of the Stage 1 and 2 results. Relevant excerpts from these interviews are also presented to indicate what participants thought about these Stage 2 results.

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<sup>1</sup> Because of a high degree of missing data, some of these variables underwent additional processing before being used in the analyses. See Appendix A for more detail about how each variable was derived from the available HMIS information.

## Results

The Stage 2 analysis identified four different groups of homeless service users based on how they used services across a 3-year period. The service usage patterns for the four groups are shown in Figure 1 using three separate lines to illustrate each group: emergency shelter (Figure 1a), transitional shelter (Figure 1b), and outreach service use (Figure 1c). The results indicate that two of the four groups show typical and unproblematic service use (Groups 1 and 2), while the remaining two groups have more complicated or prolonged service use (Group 3 and 4).



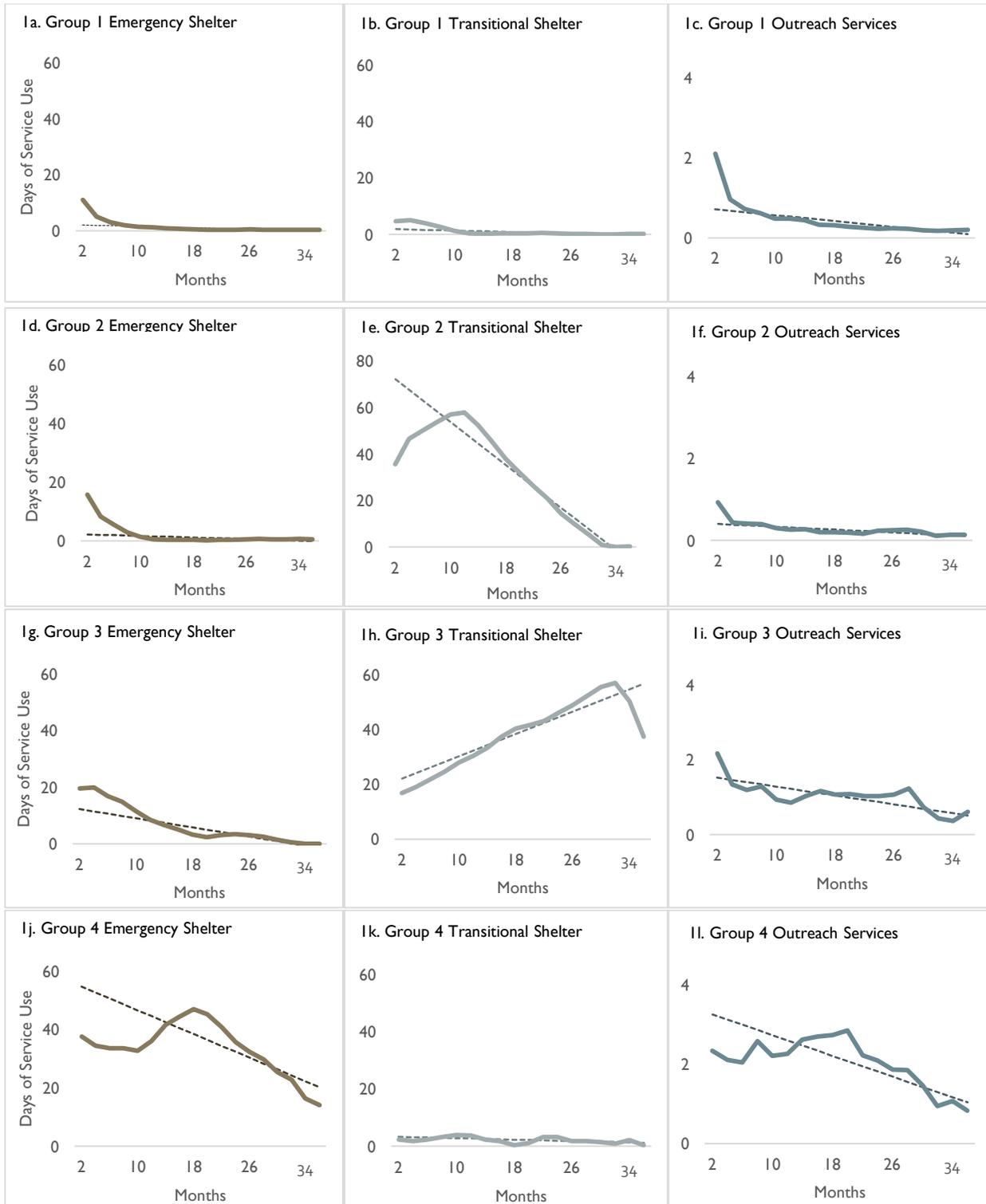
**Group 1** was the largest of the four groups. This group included 3,966 individuals or 85.2% of the total sample. Individuals in this group tended to have moderate levels of emergency shelter and outreach service use in the first few months following entry to services, but then showed a steady decrease in service use over time. Overall, the service trajectory of this group consisted of low levels of use across all three service types (Figure 1a-c) and was labeled “*Low Service Use.*”

**Group 2** was the second largest group, representing 9.7% of the sample (Figure 1d-f). This group followed a service pattern typical of most transitional shelter users, with initially high levels of transitional shelter use that dropped-off to near zero by the end of the 36-month period (Figure 1e). As transitional shelters allow for longer stays than emergency shelters, high levels of use in the first 1-2 years is to be expected for those enrolled in this service type. Therefore, the service trajectory seen in Group 2 was labeled “*Typical Transitional Shelter Use.*”

Like the Typical Transitional Shelter Use group, **Group 3** (127 individuals, or 2.7% of the sample) had high levels of transitional shelter use (Figure 1h). This group differed in that it started out with lower levels of transitional use that increased towards the end of the study period. Additionally, compared to the Typical Transitional Shelter Use group, this group also had higher levels of emergency shelter (Figure 1g) and outreach service use (Figure 1i). Because Group 3 was distinguished primarily by high transitional shelter use, but showed patterns of service use outside what is expected for the typical transitional shelter user, the group was labeled “*Atypical Transitional Shelter Use.*” This service pattern was considered problematic because it showed high and extended levels of service use across the entire 3-year time period.

**Group 4** (110 individuals, or 2.4%) was notable for its high levels of both emergency shelter (Figure 1j) and outreach service (Figure 1l) use. This group also showed a problematic pattern of service use. The high and fluctuating emergency shelter and outreach service use seen in Group 4 is similar to what one might expect from stereotypical “chronic” homelessness. However, since the sample used in this study represented newcomers to the HMIS database, this group likely represents those who are vulnerable to becoming chronically homeless during their stay in the system. Thus, Group 4 was labeled “*Potential Chronic Service Use.*”

Figure 1. Emergency Shelter, Transitional Shelter, and Outreach Service Growth Curves for Groups 1-4.<sup>a</sup>



— Sample Means    - - - Model Estimated Means

Notes: <sup>a</sup>Group 1 = Low Service Use (85.2%); Group 2 = Typical Transitional Shelter Use (9.7%); Group 3 = Atypical Transitional Shelter Use (2.7%); Group 4 = Potential Chronic Service Use (2.4%)

A series of follow-up analyses were run to explore whether 1) demographic; 2) family composition; 3) background experiences; or 4) health-related characteristics were significantly different across the four groups. These analyses examined if individuals were statistically more likely be in Groups 2-4 versus the Low Service Use group. See appendices B and C for the full breakdown of how each variable was distributed across all four groups (B) and for the full results of the regression models (C).

## Section 1. Demographic Differences Between Groups

The demographic characteristics examined included age, gender, ethnicity/race, citizenship status, lifetime residence in the state, and location (island) of first entry into services.

### Section 1a. Age and Gender

Table 1 shows the distribution of gender and age across all four groups. The two transitional service use groups (Typical and Atypical) had higher proportions of female service users (51.1% and 50.4%, respectively) than the overall sample (40.0%), and the Potential Chronic group had a lower proportion of female (26.4%) service users. *The results of our statistical analyses indicated that women had a significantly greater chance of being in the Typical Transitional group rather than the Low Service Use group. Men had a greater chance of being in the Potential Chronic Service Use group versus the Low Service Use group.*

Overall, the Typical Transitional Use group was the youngest, with an average age of 36.7 years and the Potential Chronic Use group was the oldest with an average of 44.6 years. *Age was only significantly related to being in the Potential Chronic group, with higher age predicting increased risk for membership in this group versus the Low Service Use group.*

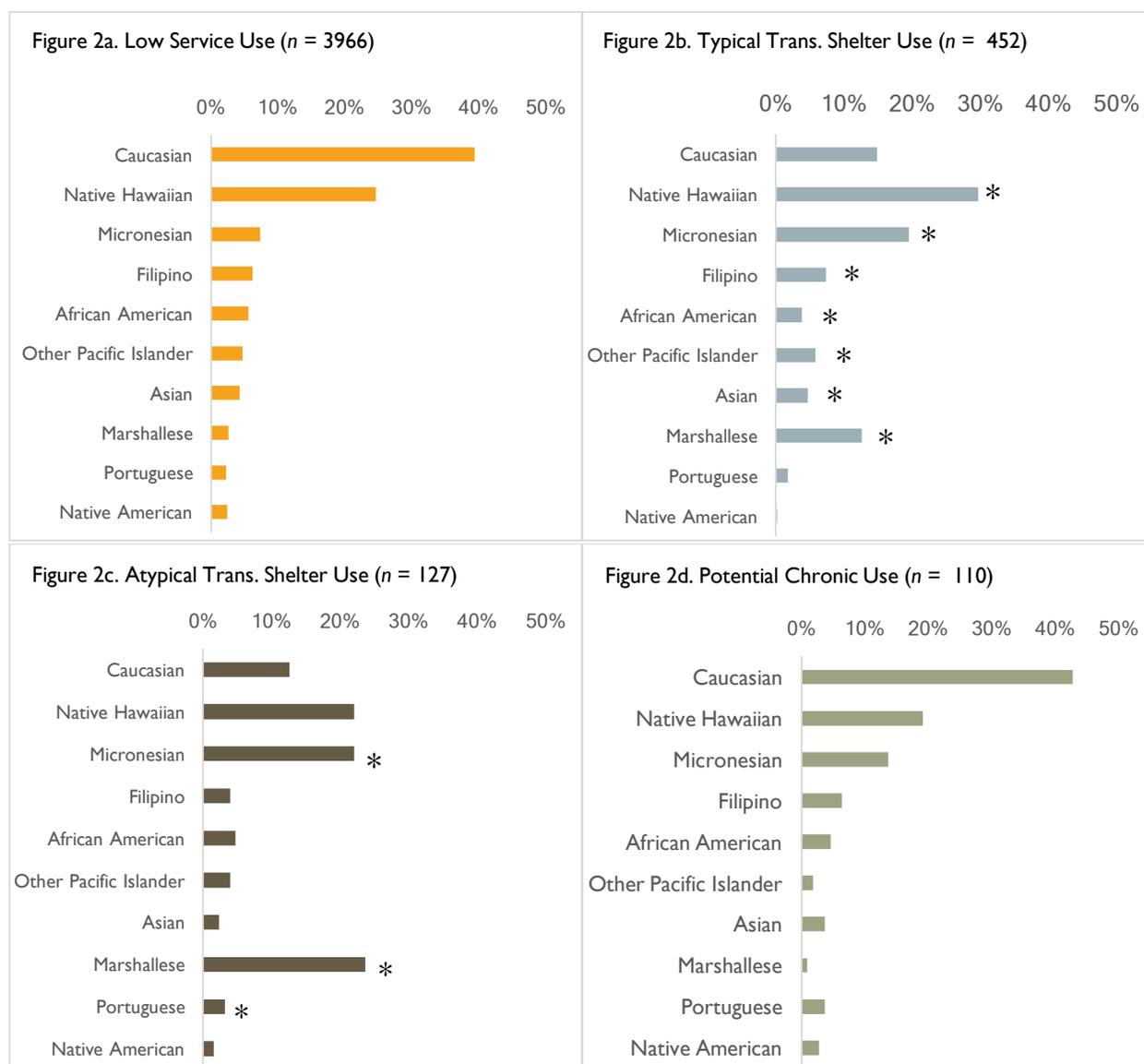
Table 1. Relative Proportions of Age and Gender across the Four Groups and Total Sample.

Demographic Characteristic	Group 1 (Low Service Use)	Group 2 (Typical Transitional)	Group 3 (Atypical Transitional)	Group 4 (Potential Chronic)	Total Sample
Female	1538 (38.8%)	231 (51.1%)	64 (50.4%)	29 (26.4%)	1862 (40.0%)
Male	2427 (61.2%)	221 (48.9%)	63 (49.6%)	81 (73.6%)	2792 (60.0%)
Missing	1 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)
<b>Total</b>	<b>3966</b>	<b>452</b>	<b>127</b>	<b>110</b>	<b>4655</b>
Mean age	38.44 (SD = 13.04)	36.71 (SD = 12.89)	37.61 (SD = 12.45)	44.60 (SD = 11.74)	38.40 (SD = 13.05)
<b>Age Groups</b>					
18-29	1241 (31.3%)	162 (35.8%)	47 (37.0%)	15 (13.6%)	1465 (31.5%)
30-39	899 (22.7%)	123 (27.2%)	28 (22.0%)	19 (17.3%)	1069 (23.0%)
40-49	944 (23.8%)	78 (17.3%)	22 (17.3%)	31 (28.2%)	1075 (23.1%)
50-59	668 (16.8%)	64 (14.2%)	23 (18.1%)	38 (34.5%)	793 (17.0%)
60-69	179 (4.5%)	20 (4.4%)	6 (4.7%)	5 (4.5%)	210 (4.5%)
70 and older	35 (0.9%)	5 (1.1%)	1 (0.8%)	2 (1.8%)	43 (0.9%)
<b>Total</b>	<b>3966</b>	<b>452</b>	<b>127</b>	<b>110</b>	<b>4655</b>

### Section 1b. Ethnicity

Figure 2a-d shows the breakdown of the self-identified primary ethnicities across each group. The asterisk indicates a significantly greater likelihood of being Groups 2-4 rather than the Low Service Use group. **Compared to Caucasian/White service users, those identifying as Hispanic, Native Hawaiian, Micronesian, Filipino, African American/Black, Other Pacific Islander, Asian, and Marshallese were at significantly increased risk of following the Typical Transitional trajectory versus the Low Service Use trajectory; Micronesian, Portuguese, and Marshallese service users were at increased risk of following the Atypical Transitional Trajectory.** Ethnicity did not significantly predict Potential Chronic Use group membership compared to the Low Service Use group.

Figure 2a-d. Relative Proportions of Primary Ethnicity Variable for Each Group.

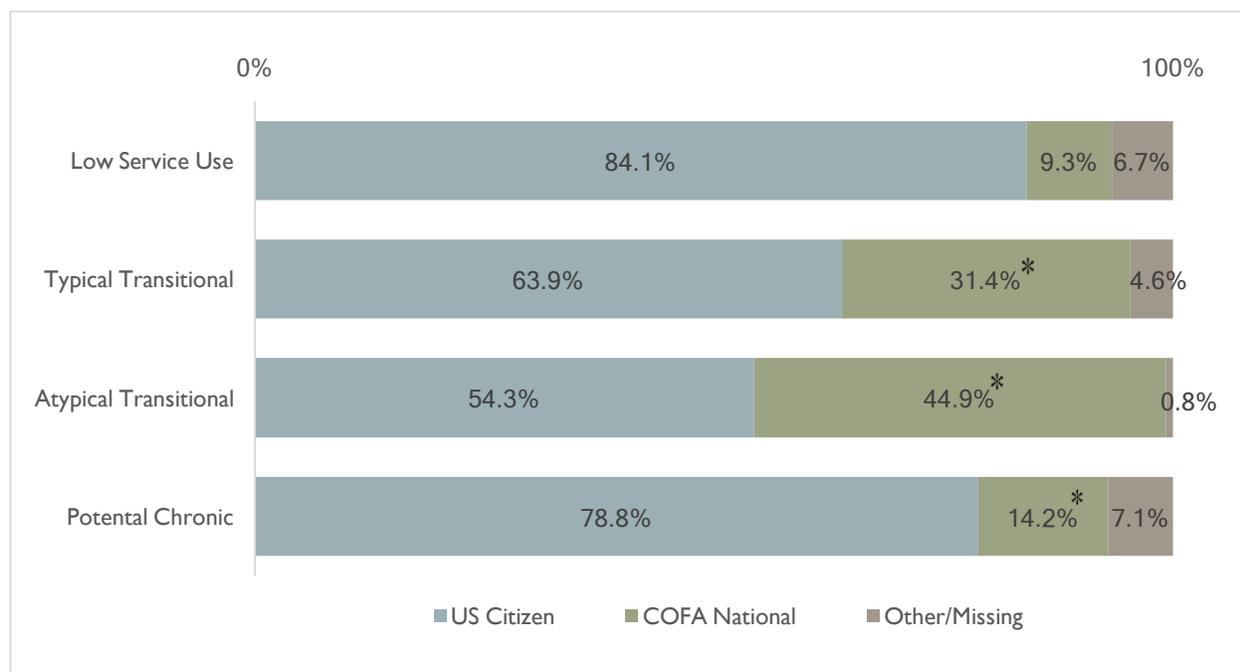


\* Denotes significantly increased odds for membership in the indicated group versus the Low Service Use group. Note: A total of 25 individuals had missing data on this variable.

### Section 1c. Citizen Status

Figure 3 indicates the relative proportions of each group that were U.S. Citizens, COFA Nationals or had Other/Missing citizenship status. Most (81.2%) of the total sample were U.S. Citizens, compared to only 78.8% in the Potential Chronic Use group, 63.9% in the Typical Transitional Use group, and 54.3% in the Atypical Transitional Use group. Both the Atypical and Typical Transitional Use groups had high proportions of COFA Nationals (44.9% and 31.4%, respectively). ***Compared to other citizenship types, COFA Nationals were at significantly increased risk of following the Typical Transitional, Atypical Transitional, and Potential Chronic trajectories versus to Low Service Use trajectory.***

Figure 3. Relative Proportions of U.S. Citizens, COFA Nationals, and Other/Missing Citizenship Statuses in Each Group.



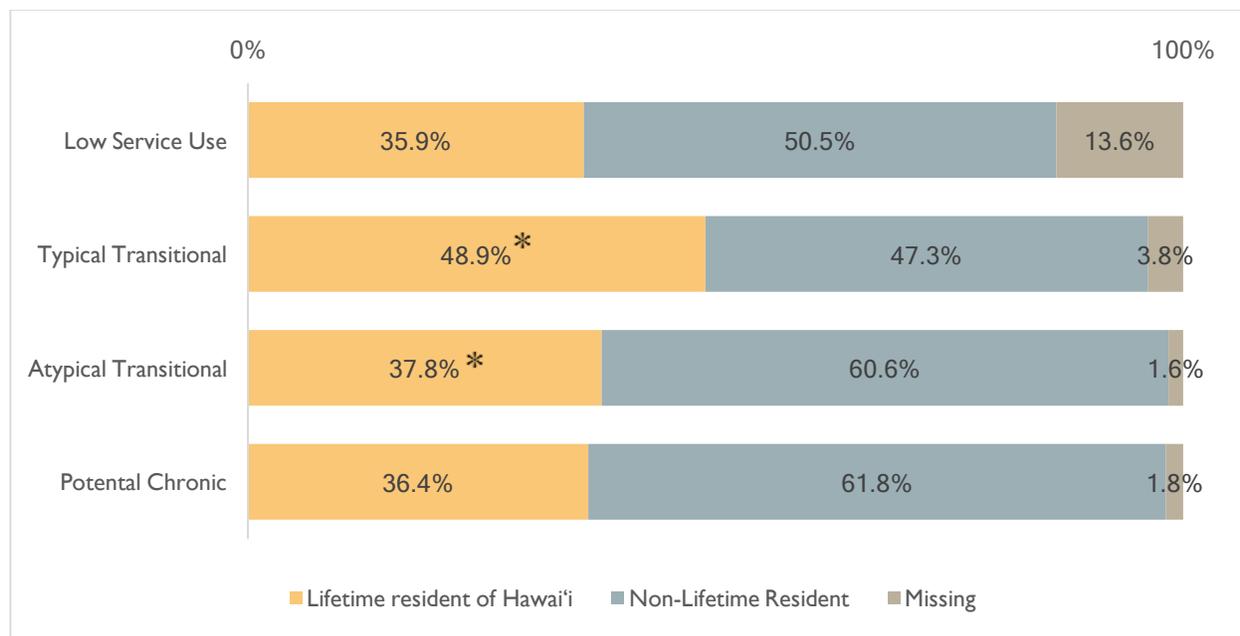
\* Denotes significantly increased odds for membership in the indicated group versus the Low Service Use group. Note: Because of the small number of Other/Missing citizenship statuses, Model 1 only compared COFA National status to all other groups (i.e., it did not specifically examine the “Other” category).

**Figure 1d. Lifetime Residence in Hawai‘i**

Lifetime residents of Hawai‘i made up 37.2% of the total sample ( $n = 1,733$ ), with an overall 10.1% rate of missing data on this variable.<sup>2</sup> Figure 4 shows the relative proportions of individuals in each group who were lifetime residents. Close to half of the Typical Transitional Shelter Use group were lifetime residents (48.9%), followed by the Atypical Transitional group (37.8%), the Potential Chronic Use Group (36.4%), and the Low Service Use group (35.9%).

*Compared to those who were not lifetime residents of the state, lifetime residents had statistically higher risk of following both transitional trajectories (Typical and Atypical) versus the Low Service Use trajectory.*

Figure 4. Relative Proportions of Lifetime Residents of the State, Non-Lifetime Residents, and Missing Data for Each Group.



\* Denotes significantly increased odds for membership in the indicated group versus the Low Service Use group.

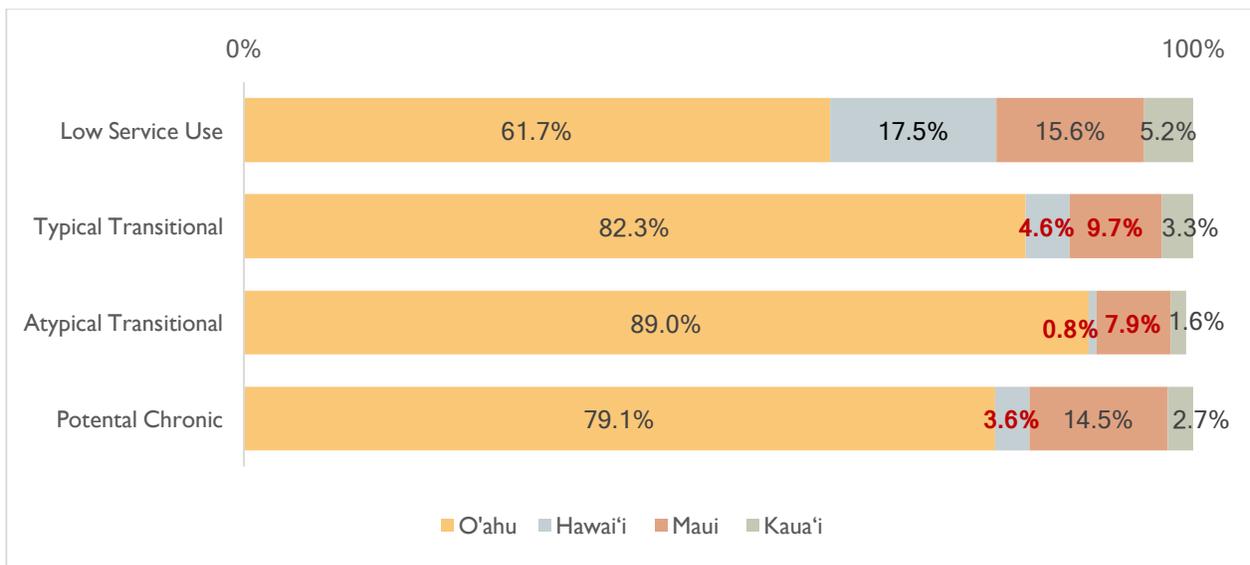
<sup>2</sup> The program in which these analyses were calculated used a sophisticated approach (Full Information Maximum Likelihood, or FIML) to statistically estimate missing values. Therefore, even individuals who were missing data were included in the logistic regression models.

### Section 1d. Island at First Entry to Services

In order to compare differences across islands, we also examined whether the island of first entry to services was associated with differing rates of group membership. Figure 5 indicates the relative proportions of individuals from each group who entered services on O‘ahu, Hawai‘i, Maui, and Kaua‘i Islands. Overall, the majority of service users in the state (64.9%) first entered services on the island of O‘ahu (City and County of Honolulu). Another 15.5% first entered services on Hawai‘i Island; 14.8% entered services on Maui; and 4.9% entered services on Kaua‘i.

The Atypical Transitional Shelter Use group (89.0%), the Typical Transitional Shelter Use group (82.3%) and the Potential Chronic Use group (79.1%) all had higher proportions of those first entering services on O‘ahu than did the Low Service Use group (61.7%). While those from neighbor islands (Hawai‘i, Maui, and Kaua‘i) were proportionally less represented overall and in Groups 2-4, *only individuals entering services on Hawai‘i Island were at significantly decreased risk of following all three of these trajectories (Typical Transitional, Atypical Transitional, and Potential Chronic). Those entering services on Maui were at decreased risk of following the Typical and Atypical Transitional Shelter Trajectories versus the Low Service Use Trajectory.*

Figure 5. Relative Proportions of Individuals in Each Group Who Entered Services for the First Time on O‘ahu, Hawai‘i, Maui, and Kaua‘i Islands.



**RED** denotes significantly LOWER odds of membership in the indicated group versus the Low Service Use group.

## Section 2: Household Composition Differences Between Groups

A second analysis examined whether household composition was different across groups. The size of the group accompanying each individual into services at each intake was calculated and then averaged across all intakes to produce an average group size. Table 2 shows that the Typical Transitional Shelter Use group had the highest average group size at 3.07 individuals per household, followed by the Atypical Transitional Shelter Use group (2.71) and the Low Service Use group (1.60). The Potential Chronic Service Use group had the lowest average group size at 1.45 individuals. *Those with a larger average group size were at significantly increased risk of following the Typical and Atypical Transitional Shelter Use trajectories versus the Low Service Use trajectory.* Indeed, many transitional shelters in the state target families, so higher group sizes are expected with this service type.

Table 2. Mean Average Group Size for Each Group and the Total Sample.

Demographic Characteristic	Group 1 (Low Service Use)	Group 2 (Typical Transitional)	Group 3 (Atypical Transitional)	Group 4 (Potential Chronic)	Total Sample
Mean Average Group Size	1.60 (SD = 1.26)	3.07 (SD = 1.94)	2.71 (SD = 1.61)	1.45 (SD = 1.11)	1.77 (SD = 1.42)
<b>Average Group Size</b>					
Exactly 1.0	2812 (70.9%)	121 (26.8%)	38 (29.9%)	82 (74.5%)	3053 (65.6%)
1.1-1.9	152 (3.8%)	17 (3.8%)	9 (7.1%)	12 (10.9%)	190 (4.1%)
2.0-2.9	439 (11.1%)	80 (17.7%)	25 (19.7)	6 (5.5%)	417 (9.0%)
3.0-3.9	248 (6.3%)	82 (18.1%)	20 (15.7%)	3 (2.7%)	250 (5.4%)
4.0-4.9	133 (3.4%)	61 (13.5%)	22 (17.3%)	2 (1.8%)	160 (3.4%)
5.0-5.9	92 (2.3%)	43 (9.5%)	4 (3.1%)	3 (2.7%)	90 (1.9%)
6.0 or more	90 (2.3%)	48 (10.6%)	9 (7.1%)	2 (1.8%)	79 (1.7%)
<b>Total</b>	<b>3966</b>	<b>452</b>	<b>127</b>	<b>110</b>	<b>4655</b>

Another indicator of household composition that was available in the HMIS database was a question indicating whether an individual had entered services as a single person, a couple without children, a single parent family, a two parent family, or an intergenerational family. However, because this question had a high amount of missing data, and because family status can change over time (as individuals part ways, add children, etc.), a combined variable was created to measure if an individual had *ever* entered services in one of the 5 family composition types. The final variable had a 18.5% rate of missing data.<sup>3</sup>

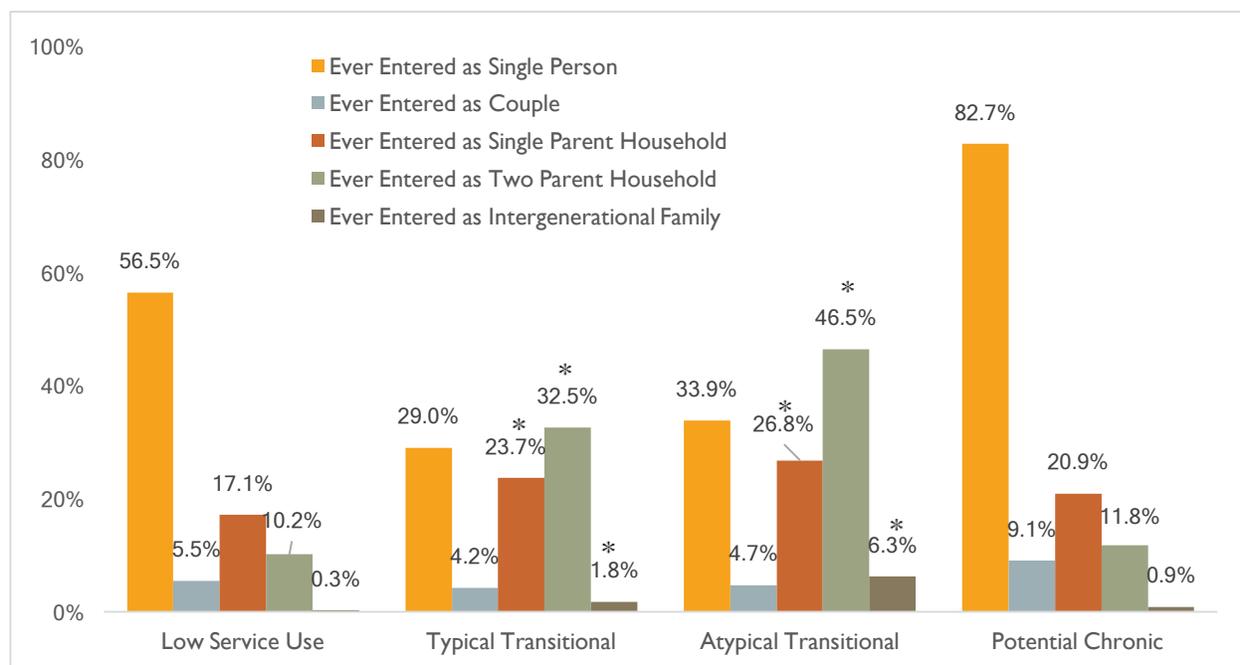
<sup>3</sup> This rate is important to consider when interpreting the different proportions of family types. However, as noted above, the logistic regression model was able to account for this missing data when computing the odds ratios for group membership.

Overall, more than half of the total sample (53.8%) had entered services at least one time as a single person household. About 18.1% of the total sample had entered as a single parent household at least once and 13.4% had entered as a two parent household at least once. Comparably few individuals in the sample had ever entered services as either a couple without children (5.5%) or an intergenerational family (0.6%). Figure 6 shows the proportions of individuals from each group who had ever entered services in each of the five family types.

Most of the Low Service Use group (56.5%) and the large majority of the the Potential Chronic Use group (82.7%) had entered services at least once as a single person household. Compared to the Low Service Use group (17.1% single parent; 10.2% two parent), both transitional service use groups had proportionally more individuals who had entered as single parent (Typical = 23.7%; Atypical = 26.8%) or two parent (Typical = 32.5%; Atypical = 46.5%) households. Those who had ever entered as an intergenerational household during the study time period were also proportionally more represented in the Typical (1.8%) and Atypical (6.3%) Transitional Shelter Use groups compared to the Low Service use (0.3%) and Potential Chronic Service Use groups (0.9%).

***Those who had ever entered as single parent, two parent, and intergenerational households were significantly more likely to follow either the Typical or Atypical Transitional Shelter Use trajectories compared to the Low Service Use trajectory. The magnitude of the odds ratios (see Appendix C) also indicated that those in two parent and intergenerational families were at particularly increased risk of following the Atypical Transitional Shelter Use trajectory.***

Figure 6. Proportion of Individuals in Each Group Who Had Ever Entered Services in Each of the Five Family Composition Types.



\* Denotes significantly increased odds for membership in the indicated group versus the Low Service Use group. Note: Because individuals could have entered services in different family configurations (i.e., as a single person at one point and a couple at another) over the course of the study, proportions of individuals in each category do not add up to 100%.

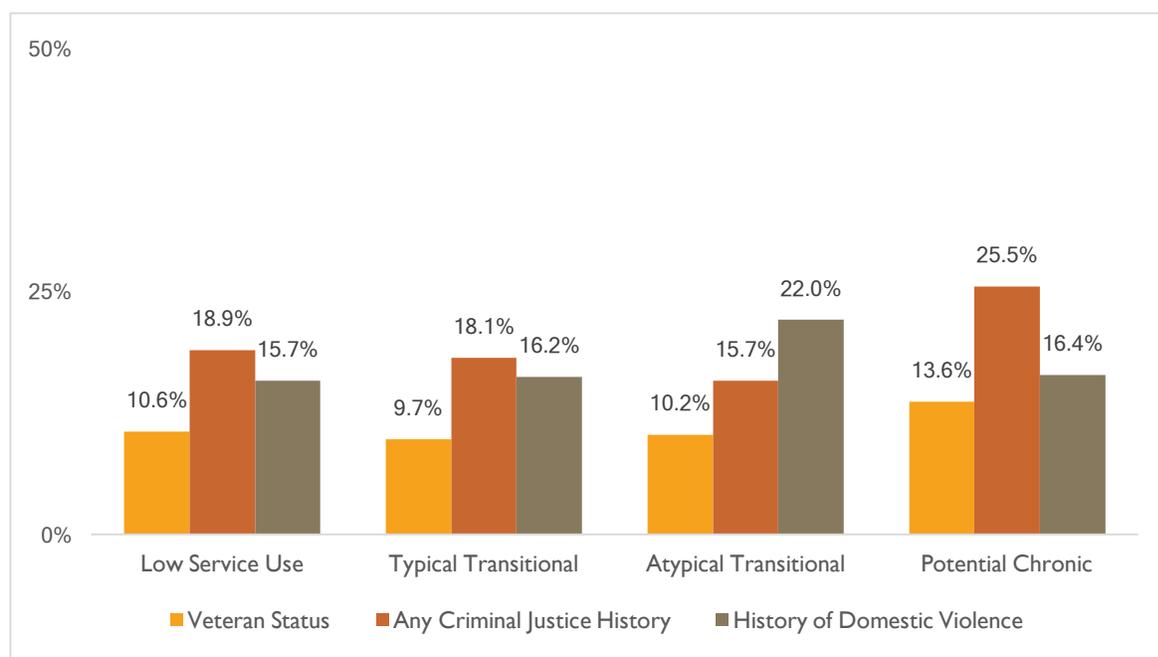
### Section 3. Background Experience Differences Between Groups

We examined whether there were group differences related to the following background experiences: veteran status, criminal justice involvement, a history of domestic violence, and education and employment at entry.

#### Section 3a. Veteran Status, Criminal Justice Involvement, and Domestic Violence

Figure 7 shows the proportions of individuals in each group who had ever indicated having a veteran status, a history with the criminal justice system, or a history of domestic violence victimization. The Potential Chronic Use group had slightly higher proportions of individuals with a veteran status (13.6% versus 10.6%) and a history of criminal justice involvement (25.5% versus 18.9%) than the Low Service Use group. Additionally, the Atypical Transitional Shelter Use group had slightly lower rates of criminal justice involvement (15.7% versus 18.9%) and higher rates of domestic violence victimization (22.0% versus 15.7%) than the Low Service Use group. ***However, none of these group differences reached significance in our statistical analysis.***

Figure 7. Proportion of Individuals in Each Group Who Had Ever Endorsed a Veteran Status, History with the Criminal Justice System, or History of Domestic Violence Victimization.



\* Denotes significantly increased odds for membership in the indicated group versus the Low Service Use group.

### Section 3b. Education and Employment

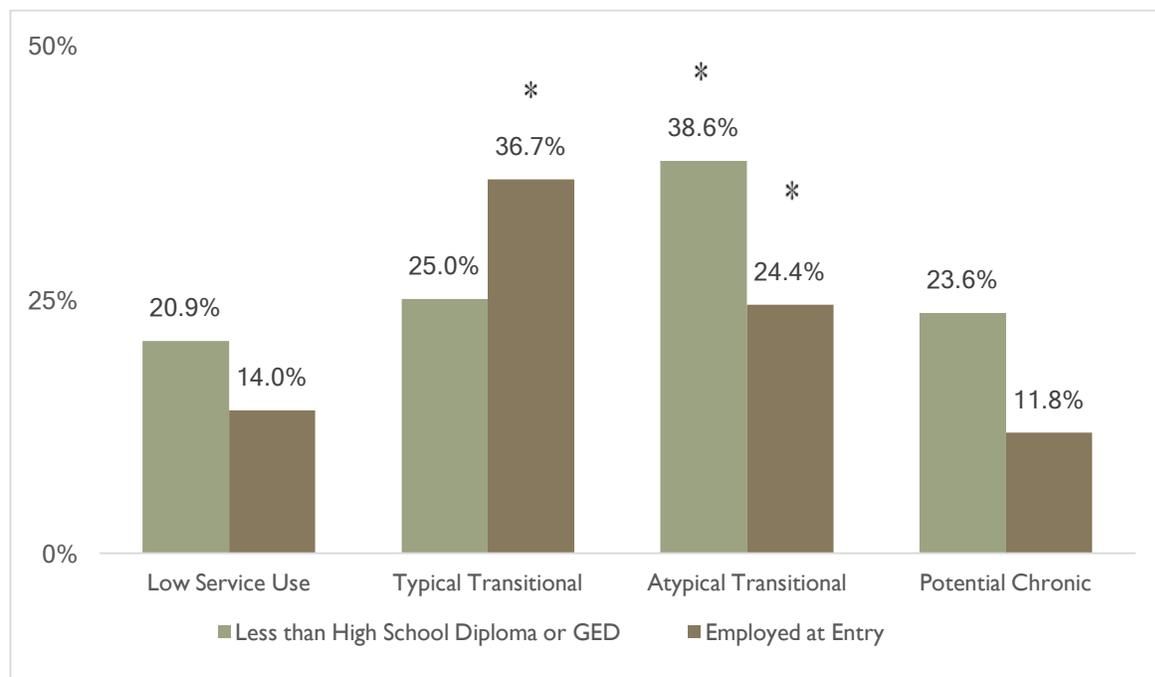
We also examined whether rates of having less than a high school education or having employment at entry to services were different across the four groups. Figure 8 shows the proportions of individuals from each group who had NOT received either a high school degree or a GED equivalent prior to entering services. It also shows the proportions of individuals who were employed at entry to services.

While the sample overall had 21.8% of individuals entering services with less than a high school diploma, 38.6% of the Atypical Transitional Shelter Use group and 25.0% of the Typical Transitional Shelter Use group had this level of education. The Low Service Use and Potential Chronic Use groups had a 20.9% and a 23.6% rate of less than high school education, respectively.

However, despite the lower levels of education in the two transitional shelter groups, they both had fairly high rates of employment at entry (Typical = 36.7%; Atypical = 24.4%) compared to the Low Service Use (14.0%) and Potential Chronic Use (11.8%) groups.

***Those with less than a high school education were at a significantly increased risk of following the Atypical Transitional Shelter Use trajectory versus the Low Service Use trajectory. Additionally, those who were employed at entry were also significantly more likely to follow either of the transitional shelter use trajectories compared to the Low Service Use trajectory.***

Figure 8. Proportion of Individuals in Each Group Who Entered Services with Less than a High School Education or Had Entered Services with Employment.



\* Denotes significantly increased odds for membership in the indicated group versus the Low Service Use group.

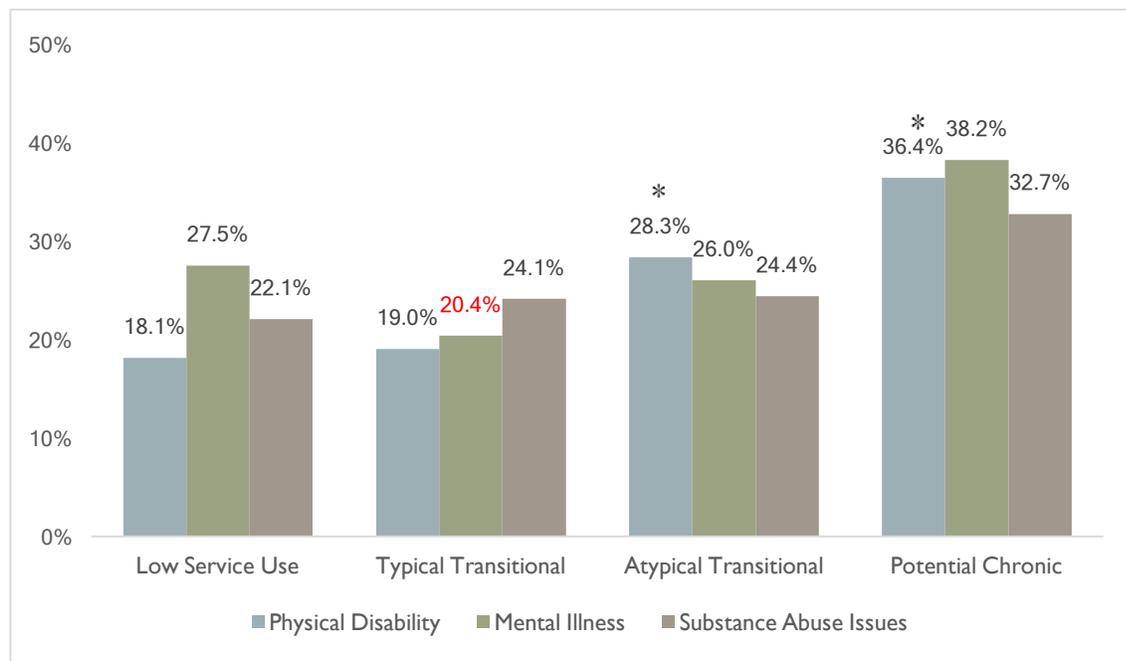
### Section 4: Health Differences Between Groups

In order to explore health differences between groups, examined if rates of physical disability, mental illness, and substance abuse issues were different across groups. The total sample had 18.9% of service users reporting a physical disability, 27.0% reporting a mental illness, and 22.6% reporting substance abuse issues. Figure 9 shows the distribution of these health variables across the four different groups.

The Potential Chronic Use group had the highest rates of physical disability (36.4%), followed by the Atypical Transitional (28.3%), Typical Transitional (19.0%), and Low Service Use (18.1%) groups. The Potential Chronic Use group also had the highest rates of self-reported mental illness at 38.2%. The remaining three groups had mental illness rates ranging between 20.4% (Typical Transitional) and 27.5% (Low Service Use). Finally, the Potential Chronic Use group also had the highest rate of substance abuse (32.7%), with the remaining three groups ranging from 22.1% (Low Service Use) to 24.4% (Atypical Transitional).

*However, in our analysis, only physical disability significantly predicted higher risk. Those with a disability were significantly more likely to follow both of the more problematic trajectories: the Atypical Transitional and Potential Chronic Use trajectories. Having a mental illness was also associated with significantly lower likelihood of following the Typical Transitional trajectory.*

Figure 9. Proportion of Individuals in Each Group Who Had Ever Endorsed Having a Physical Disability, Mental Illness, or Substance Abuse Issue.



**RED** denotes significantly LOWER odds of membership in the indicated group versus the Low Service Use group.  
 \* Denotes significantly HIGHER odds for membership in the indicated group versus the Low Service Use group.

### Section 5: Number of Days of Service Use in Year 4

A final follow-up analysis was conducted to determine if group membership was related to different levels of year 4 service use (months 37 to 48). The four subgroups described above were determined using only months 1-36 (years 1-3) of service use. Year 4 service use can indicate if individuals either remained in or returned to the system, and thus serves as a rough indicator of problematic outcomes.

Table 3 shows relative proportions of year 4 service use for each group and for the total sample. The large majority of the sample (86.0%) had no additional homeless service use in year 4. However, the proportions of individuals with year 4 service use ranged widely across groups. Both the Low Service Use group (12.1%) and the Typical Transitional group (10.0%) had relatively low numbers of individuals with year 4 service use, compared to the Atypical Transitional group (64.6%) and the Potential Chronic group (43.6%).

The statistical analysis found that *the Atypical Transitional and the Potential Chronic groups had significantly higher rates of year 4 homeless service use compared to the Low Service Use group. However, membership in the Typical Transitional group did not predict significantly higher year 4 service use.* These results give support to the characterization of the Atypical Transitional and Potential Chronic Service Use trajectories as prolonged and problematic patterns of service use.

Table 3: Breakdown of Year 4 Service Use: Number of Individuals in Each Group and the Total Sample.

	Group 1 (Low Service Use)	Group 2 (Typical Transitional)	Group 3 (Atypical Transitional)	Group 4 (Potential Chronic)	Total Sample
Mean	5.74 ( <i>SD</i> = 31.061)	9.74 ( <i>SD</i> = 45.961)	98.93 ( <i>SD</i> = 117.301)	42.54 ( <i>SD</i> = 85.044)	9.54 ( <i>SD</i> = 34.96)
<b>Number of Days of Service Use in Year 4</b>					
No Services	3487 (87.9%)	407 (90.0%)	45 (35.4%)	62 (56.4%)	4001 (86.0%)
1-30 Days	319 (8.0%)	22 (4.9%)	9 (7.1%)	19 (17.3%)	369 (7.9%)
31-90 Days	71 (1.8%)	3 (0.7%)	25 (19.7%)	9 (8.2%)	108 (2.3%)
91-180 Days	49 (1.2%)	9 (2.0%)	18 (14.2%)	11 (10.0%)	87 (1.9%)
181-360 Days	36 (0.9%)	11 (2.4%)	28 (22.0%)	8 (7.3%)	83 (1.8%)
361-410 Days	4 (0.1%)	0 (0.0%)	2 (1.6%)	1 (0.9%)	7 (0.2%)
<b>Total</b>	<b>3966</b>	<b>452</b>	<b>127</b>	<b>110</b>	<b>4655</b>

## Participant Reactions to the Stage 2 Results

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During the Stage 3 interviews with the service providers and service users, preliminary data from statistical analyses in Stage 2 were presented and discussed. The results presented were very similar to, if not exactly the same as, the ones presented here. Participants were asked if the results made sense to them and if they disagreed with or were not sure about anything presented. Many of the participants reported that these results did, “*by and large*” make sense to them. For example:

*But yeah! Yes! It does make sense. And, you know, that shows how important data is. Inputting data. Data, data, data. And that's the only way we can see our, um, improvements or what needs to improve, what's lacking, what's missing (Service Provider).*

*It looks like that to me, just looking at the graph. Looking at the graph, it looks- it's definitely familiar. 'Cause emergency shelter, you know, you go up and down, up and down- Oh- kick me out- Uh.. You're comin' back and yuh- ya know? And then outreach is like the same thing, you're tired, hurricane season an'- and then this is never- this is- yeah, that's returning the loop (Service User).*

The one feature of the results that seemed to surprise some interviewees was that such a high proportion of the sample (around 85% in the preliminary results) followed the Low Service Use trajectory. This was the topic of some extended discussion in the service provider focus group interview:

*I'm so distracted by the disproportionate percentages that you got. I'm having a hard time, I'm trying to figure out what that's about. 85 is such a huge- it makes me wonder how consistently different service providers across the panacea of homeless services are having fidelity to using HMIS if your numbers are so disproportionately that – in that. This- this last group [indicating the potential chronic group] I would think would be higher. The middle group [indicating the typical transitional group] I could see being- maybe right where it's at, 10% (Service Provider).*

However, after some further discussion that highlighted the fact that the sample consisted of *newcomers* to the system, who are less prone to patterns of chronic homelessness than those already in the system, the focus group participants agreed that the group proportions did seem more reasonable in that light. It is not surprising that service providers might overestimate the numbers of chronic service users in the homeless system. The individuals that they see on a regular basis and interact with the most are likely to be those who have more complicated homeless trajectories. The large portion of the newcomer group that came and went quickly

likely did not draw as much attention or notice as those who had prolonged involvement with services.

While several of the interviewees expressed agreement with the statistical results, it should be noted that others seemed perplexed or unsure about the meaning of the graphs and groups. For example, one service provider expressed some agreement with the results, but then also made the following remark:

*Yeah this is- this whole thing is the little hard for me to grasp. This was great [indicating the Stage 1 qualitative themes]. I understood all of that, but this is still- I mean I hear what you're saying, I just don't know that I understand how it works. But, um, I think that's- all this kind of stuff that's very helpful to understand the population and where they are and what we need to do to solve the problem (Service Provider).*

Additionally, the following service user also expressed confusion with regards to the statistical results, and really did not show much interest in comparison to the Stage 1 results:

**Interviewer:** *Yeah, yeah, and I was a little worried that all the graphs and numbers and things might just- kinda put people off [Participant: Yeah]. Yeah.*

**Participant:** *I mean, it's not like a put off but, ya know, it's something to think about. And I think I just get confused by the days and the months like 'cause it- how many months and how many days or? [Service User].*

Therefore, while the interviewees were largely in agreement about the meaningfulness of the results presented here, there was some variation in their reactions.

## Conclusion

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Using a latent class growth analysis (LCGA) approach, this study grouped individuals new to the service system according to how they used services across a three-year time period. Drawing on the characteristics related to group membership, it was possible to create rough group profiles to describe the individuals who might be likely to fall into each service use category. However, increased likelihood of belonging to a particular group should not be considered a determinant of how all, or even most, individuals fitting the profile might behave. Thus, the pictures painted below are at best loose guides to which services users might be likely to follow each of the four service user trajectories. Please see Appendix D for more detailed notes about the limitations to the approach taken in this study.

### Low Service Use Profile

- Most service users (85.2%) followed the low service use trajectory.
- Individuals in this group were mostly male.
- The most numerous ethnicity was White/Caucasian, followed by Native Hawaiian and Micronesian.
- Most were U.S. Citizens, though COFA Nationals and other citizen status types were also present.
- This group had the second lowest mean average group size and had a high portion of single-person households, suggesting that it is dominated by single individuals and smaller family households.
- The proportions of veterans, those with a history of criminal justice involvement, and those with a history of domestic violence all closely mirrored the total sample characteristics. The same could be said of educational and employment characteristics, as well as health-related issues.

***In short, the low service use group had some features that might be considered risk factors or issues of concern, but these factors did not seem to complicate their homeless trajectories.*** For example, 20.9% of the service users in this group did not have a high school diploma and only 14.0% were employed at entry. Many had physical disabilities, mental health issues, and/or substance abuse issues. In fact, most of those who had endorsed having a substance abuse issue (83.3%) followed the Low Service Use trajectory. The same could be said for mental health issues, disabilities, etc.

### Typical Transitional Shelter Use Profile

- The Typical Transitional Shelter Use group (9.7%) was more likely to be local and more likely to be made up of families.
- There was a higher proportion of women than in any other group, possibly indicating a more single mothers.
- It also tended to be slightly younger than the Low Service Use group.
- The most common ethnicity was Native Hawaiian, followed by Micronesian, Caucasian/White, and Marshallese.

- Most were U.S. Citizens, though there was a much higher proportion of COFA Nationals in this group compared to the Low Service Use group.
- Around half of the Typical Transitional group was lifetime residents of the state.
- These service users had the highest mean average group size, and had high proportions of those who had ever entered services as a single parent and/or two-parent household.
- Most had at least a high school diploma and a comparably large percentage were employed at first entry to services.
- This group had levels of veteran status, criminal justice involvement, domestic violence, physical disability, and substance abuse issues similar to the total sample and to the Low Service Use group.
- However, it did have noticeably lower rates of reported mental health issues than the Low Service Use group.

***In sum, all of these characteristics taken together paint a picture of the Typical Transitional Shelter Use group as consisting largely of Local, Native Hawaiian, and other Pacific Islander families.*** The fact that this group did not have elevated levels of complicating factors, such as health or mental health problems, criminal justice histories, etc., along with its relatively high employment and the fact that it was not significantly more likely to have higher levels of year 4 service use than the low service use group, suggests that its high use of transitional shelter days was perhaps more related to the transitional shelter service model and the lack of affordable housing in the state than it is to a high level of chronicity or prolonged need for services (See Part I of this report and Culhane, Metraux, Park, Schretzman, & Valente, 2007).

### **Atypical Transitional Shelter Use Profile**

- The Atypical Transitional Shelter Use group (2.7%) also tended to be more Local, Native Hawaiian, and other Pacific Islander and consisted of more families than the Low Service Use group.
- It had a high proportion of women.
- Marshallese individuals were the most numerous ethnic group, followed closely by Native Hawaiians and Micronesians.
- While a narrow majority were U.S. Citizens, COFA Nationals represented a large portion of this group.
- It had the second highest mean average group size, and had a comparably high proportion of individuals who had ever entered as a single-parent and/or two-parent household.
- Those who had entered with a two-parent or intergenerational household were at particularly increased risk for following this trajectory.
- This group had slightly lower rates of criminal justice involvement than the sample as a whole and slightly higher rates of domestic violence victimization.
- Perhaps one of the most significant risk factors for this group was its lower levels of education compared to the other groups. It had the highest proportion of individuals without a high school diploma or GED equivalent than any other group.
- This group had a fairly high rate of employment at entry compared to the total sample.
- The Atypical Transitional Use group had relatively high rates of physical disability present. However, the group did not have noticeably higher proportions of mental health or substance abuse issues.

***It would seem that those following the Atypical Transitional Shelter Use trajectory likely had one or more factors that made them more vulnerable to prolonged or complicated service stays.*** That two-parent and intergenerational family households experienced particularly high odds of following this trajectory versus the Low Service Use trajectory could indicate that larger families or family households with more than one adult might experience additional barriers in accessing either housing or transitional shelter services or that they may be initially less willing to enter such services.

Another potential risk factor for following this trajectory was having a COFA National citizen status. The fact that COFA Nationals lack citizen status (and the services and benefits associated) may be related their higher risk. Additionally, these groups may struggle with language and cultural barriers as well as systemic discrimination in the housing market. Lower levels of education may be impacting the ability of some of the individuals and families in this group to earn a livable income, despite the fact that many were employed. Similarly, issues involving mobility and ability to work may be affecting some individuals and families with physical disabilities. In sum, one or more of these vulnerabilities may have complicated the trajectories of those in the Atypical Transitional Shelter Use group resulting in a longer period of homeless service use (emergency shelter and outreach services) prior to accessing transitional shelter.

### **Potential Chronic Use Profile**

- The Potential Chronic Use group (2.4%), had the highest mean age of all the groups and the majority of group members were men.
- Caucasian/White individuals were the most numerous ethnic group, followed by Native Hawaiians and Micronesians.
- A large proportion was U.S. Citizens.
- Lifetime residents of the state were also represented at levels comparable to those of the sample as a whole.
- This group had the lowest mean average group size, and had a comparably low proportion of individuals who had ever entered service in some type of family unit.
- They had slightly higher rates of criminal justice involvement than the sample as a whole as well as proportionally more veterans.
- This group's educational levels more or less mirrored those of the sample as a whole.
- They had the lowest rates of employment at entry to services.
- The Potential Chronic Service Use group had higher rates of physical disability, mental health issues, and substances abuse problems than the other three groups. However, only those with physical disabilities were significantly more likely to fall into this group versus the Low Service Use group.

***In short, the Potential Chronic Service Use group tended to have many of the characteristics associated with the stereotypical chronically homeless individual.*** They tended to be single person households consisting of older men with some level of disability status.

## Summary

These Stage 2 results indicated that:

- Many individuals (85.2% of the sample) from a wide variety of backgrounds enter HMIS services, use low levels of service, and exit fairly quickly.
- Therefore, it is fair to say that **most** families (e.g., 80.6% of those ever entering in single parent households; 65.0% for two-parent households) and single persons (e.g., 89.4% of those ever entering as single person households) in the service system follow this pattern of very Low Service Use.

However, there were also a number of individuals and families who spent longer periods of time in services.

- Two groups that used higher levels of services tended to be composed of families, predominantly of Local or Pacific Islander origin (the Typical and Atypical Transitional Shelter groups).
- Despite the fact that the Typical Transitional Shelter group (9.7%) had higher levels of service use, longer shelter stays are part of the transitional shelter design. Therefore, this service pattern was not considered a problematic use of services.
- The Atypical Transitional Shelter group (2.7%) did show problematic service use, with high levels of emergency shelter, transitional shelter, and outreach service use across the three-year time period.
- Two-parent and intergenerational households, COFA Nationals, those with disabilities, and those without a high school diploma were overrepresented in the Atypical Transitional Shelter use group.
- The third prolonged service use group (Potential Chronic Use, 2.4%) tended to have higher proportions of older men and single person households, as well as those with physical disabilities, and was predominantly White/Caucasian.

## Recommendations

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### Recommendation 1: Identify and Fill Service Gaps for Vulnerable Groups

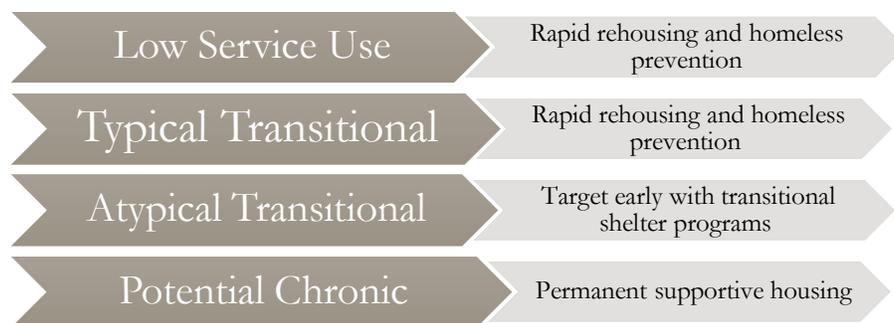
This study used qualitative and statistical analyses to identify a number of individual and family level risk factors for prolonged or problematic homeless experiences in Hawai'i. These risk factors for experiencing extended homeless service use included, but are not limited to:

- Larger family sizes
- Physical disabilities
- COFA National status
- Not having a high school degree

Better addressing these vulnerabilities represents an avenue for immediate intervention. Bridging these individual level gaps in services is an obvious short-term intervention strategy. However, as a mechanism for addressing long-term change it will likely have limited effectiveness. Interventions at the individual level seldom have impacts on the overall community level of homelessness. Even so, addressing gaps in services is a target which is likely highly amenable to change and can provide some immediate relief to a portion of individuals and families who are currently struggling to get housed.

### Recommendation 2: Align Homeless Services with Needs

At the systems level, another target for change is a more efficient system for pairing homeless services with the appropriate needs. Indeed, the homeless service system in Hawai'i does seem to have engaged in a good deal of thought and effort towards this end (Yuan, Vo, & Gleason, 2014). In this respect, the four service use trajectories described above could be used as rough guides to targeting services to the most appropriate service user groups. The figure below indicates programmatic suggestions for each of the four groups found in the Stage 2 analyses.



In describing a service strategy that attempts to intervene and prevent the negative outcomes of prolonged homelessness before they can occur, Culhane et al. (2011) recommend that homeless prevention and rapid rehousing services target those who are not likely to need extended levels of support.

- Those in the *Low Service Use* group did not seem to require high levels of service. Therefore, addressing their needs through rapid rehousing and homeless prevention services may be a more efficient way to address their temporary housing crises.

- While the *Typical Transitional Shelter Use* group did seem to require higher levels of support given their prolonged transitional shelter use, Culhane et al. (2011) questioned this approach and suggested that longer shelter stays have not been convincingly shown to improve outcomes.
- Indeed, the relatively low levels of complicating issues with which the *Typical Transitional* group presented suggests that they may be just as successful if they bypassed the prolonged transitional shelter stay altogether.
- Homeless prevention and rapid rehousing programs are currently underway in the state and future analyses will likely shed some light on the effectiveness of these strategies.
- However, as discussed in Part I of this report, the lack of available of affordable housing in the state could present a very real barrier to any plan that proposes to increase homeless prevention and rapid rehousing strategies.

Because of their potential vulnerability to prolonged service use, the *Atypical Transitional Shelter Use* group may be more effectively targeted with services by admitting them into transitional shelters earlier in their service trajectories.

- Current service patterns for the Atypical Transitional group suggest that many are using emergency shelter and/or outreach services for several months before their increase in transitional service days.
- It is quite possible that those with certain complicating issues (intergenerational families, COFA Nationals, those with disabilities or low levels of education) are being seen as less ready or less willing for the highly structured settings of transitional shelters.
- However, making these settings more accessible and appealing to these individuals and families would give them the supportive environment they need to be able to address longer-term goals such as income stability, skill building, and job training/educational issues.

Finally, many research studies have explored the effectiveness of housing first approaches for targeting chronically homeless populations (e.g., Nelson et al., 2013; Tsemberis, 2004).

- As the effectiveness of housing first programs seems to have been fairly consistently established, it is likely that the *Potential Chronic Service Use* group would benefit from this approach and other long-term supportive housing services (Culhane et al., 2011).
- In fact, two such programs are currently underway in Honolulu and are targeting chronically homeless populations (Yuan et al., 2016). Future studies will no doubt show how these new approaches are impacting the service trajectories of those vulnerable to chronic homelessness.

As a target for intervention, this service matching approach does seem to have some promise for enacting lasting change. Restructuring service priorities at the system level likely has the potential to shape programmatic and organizational attitudes and approaches, as well as influencing the individual level experiences of homeless individuals by reducing or eliminating the days they need to spend in homeless services. On the other hand, system-wide approaches are fairly difficult to enact.

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### Appendix A. Individual and Family Factors from Qualitative Results and Potential HMIS Data Points to Match.

Individual/ Family Level Themes	HMIS Variable	Collection Time	Data Processing	% Final Missing
<b>Demographic Factors</b>				
Age or Developmental Stage	Date of Birth	At entry to system	Calculated age as 2009-year of birth	0.0%
Gender	Sex	At entry to system	Transgender categories recoded into male or female	0.0%
Ethnic or Cultural Group	Hispanic ID	At entry to system	“Unknown” and “refused” coded as missing <sup>a</sup>	5.2%
	Primary Race ID	At entry to system	Collapsed some ethnic groups into larger categories	0.5%
	Citizenship Status ID	At entry to system	Eliminated categories that were not used (0% endorsed), condensed others when necessary	2.7%
	Lifetime Resident ID	At entry to system	“Unknown” and “refused” coded as missing	10.1%
Household Composition	Family Status ID	Each intake	Calculated if ever entered as single, couple, single parent, two parent, or multigenerational household	18.5%
	Group ID	Each intake	Group IDs used to calculate average group size across all intakes	0.0%
Intake Location	Program ID	Each intake	Calculated geographic location of first intake	0.0%
<b>Background Experience Variables</b>				
Criminal Justice Background	Criminal Justice ID	Each intake	Calculated if ever (at any intake) endorsed one of several different kinds of criminal justice involvement	10.1%
Veteran Status	Veteran Status	Each intake	Calculated if ever indicated at any intake that they were a veteran	7.0%
History of Domestic Violence	Domestic Violence ID	Each intake	Calculated if ever indicated at any intake that they experienced domestic violence <sup>b</sup>	7.7%
Education	Education Type ID	Each intake	Only looked at first intake record to determine level of education at first intake	11.1%
Economic Factors	Employment Status ID	Each intake	Only looked at first intake record to determine if were employed at first intake	9.0%
<b>Health Related Issues</b>				
Physical Health Issues or Disabilities	Physical Disability ID	Each intake	Calculated if ever endorsed at any intake having a physical disability	6.3%
Mental Health	Mental Illness ID	Each intake	Calculated if ever endorsed at any intake having a mental illness	5.6%
Substance Abuse	Substance Abuse	Each intake	Calculated if ever endorsed at any intake having drug or alcohol problem	6.3%

Notes: <sup>a</sup>Unless otherwise stated, indications of “unknown” or “refused” were treated as missing data across all variables.

<sup>b</sup>While shelters that exclusively served victims of domestic violence were not required to enter data into the HMIS, many shelters in the system do encounter domestic violence victims.

Appendix B. Distribution of Demographic, Family Composition, Background, and Health Variables

	Group 1 (Low Use) <i>n</i> = 3966 (85.2%)	Group 2 (Typical Transitional) <i>n</i> = 452 (9.7%)	Group 3 (Atypical Transitional) <i>n</i> = 127 (2.7%)	Group 4 (Potential Chronic) <i>n</i> = 110 (2.4%)	Total Sample <i>N</i> = 4655
<b>Demographic Characteristics</b>					
Female	1538 (38.8%)	231 (51.1%)	64 (50.4%)	29 (26.4%)	1862 (40.0%)
Mean age	38.44 (13.04)	36.71 (12.89)	37.61 (12.45)	44.60 (11.74)	38.40 (13.05)
Identifies as Hispanic	451 (11.4%)	59 (13.1%)	10 (7.9%)	10 (9.1%)	530 (11.4%)
<b>Primary Ethnicity</b>					
Caucasian/White	1559 (39.3%)	67 (14.8%)	16 (12.6%)	47 (42.7%)	1689 (36.3%)
Native Hawaiian	977 (24.6%)	134 (29.6%)	28 (22.0%)	21 (19.1%)	1160 (24.9%)
Micronesian	291 (7.3%)	88 (19.5%)	28 (22.0%)	15 (13.6%)	422 (9.1%)
Filipino	246 (6.2%)	33 (7.3%)	5 (3.9%)	7 (6.4%)	291 (6.3%)
African	222 (5.6%)	17 (3.8%)	6 (4.7%)	5 (4.5%)	250 (5.4%)
American/Black					
Other Pacific Islander	186 (4.7%)	26 (5.8%)	5 (3.9%)	2 (1.8%)	219 (4.7%)
Asian	169 (4.3%)	21 (4.6%)	3 (2.4%)	4 (3.6%)	197 (4.2%)
Marshallese	104 (2.6%)	57 (12.6%)	30 (23.6%)	1 (0.01%)	192 (4.1%)
Portuguese	91 (2.3%)	8 (1.8%)	4 (3.1%)	4 (3.6%)	107 (2.3%)
Native American	98 (2.5%)	1 (0.2%)	2 (1.6%)	3 (2.7%)	104 (2.2%)
COFA Status	368 (9.3%)	142 (31.4%)	57 (44.9%)	16 (14.5%)	583 (12.5%)
Lifetime resident of HI	1424 (35.9%)	221 (48.9%)	48 (37.8%)	40 (36.4%)	1733 (37.2%)
<b>Island of First Entry</b>					
O‘ahu	2449 (61.7%)	372 (82.3%)	113 (89.0%)	87 (79.1%)	3021 (64.9%)
Hawai‘i	695 (17.5%)	21 (4.6%)	1 (0.8%)	4 (3.6%)	721 (15.5%)
Maui	617 (15.6%)	44 (9.7%)	10 (7.9%)	16 (14.5%)	687 (14.8%)
Kaua‘i	205 (5.2%)	15 (3.3%)	2 (2.4%)	3 (2.7%)	226 (4.9%)
<b>Household Composition</b>					
Mean Average Group Size	1.60 (1.26)	3.07 (1.94)	2.71 (1.61)	1.45 (1.11)	1.77 (1.42)
<b>Household Composition</b>					
Ever Single Person	2239 (56.5%)	131 (29.0%)	43 (33.9%)	91 (82.7%)	2504 (53.8%)
Ever Couple	219 (5.5%)	19 (4.2%)	6 (4.7%)	10 (9.1%)	254 (5.5%)
Ever Single Parent	680 (17.1%)	107 (23.7%)	34 (26.8%)	23 (20.9%)	844 (18.1%)
Ever Two Parent	403 (10.2%)	147 (32.5%)	59 (46.5%)	13 (11.8%)	622 (13.4%)
Ever Intergenerational	11 (0.3%)	8 (1.8%)	8 (6.3%)	1 (0.9%)	28 (0.6%)
<b>Background Experiences</b>					
Veteran Status	419 (10.6%)	44 (9.7%)	13 (10.2%)	15 (13.6%)	491 (11%)
Any Criminal Justice History	749 (18.9%)	82 (18.1%)	20 (15.7%)	28 (25.5%)	879 (19%)
History of Domestic Violence	624 (15.7%)	73 (16.2%)	28 (22.0%)	18 (16.4%)	743 (16.0%)
Less than High School Diploma or GED	827 (20.9%)	113 (25.0%)	49 (38.6%)	26 (23.6%)	1015 (21.8%)
Employed at Entry	556 (14.0%)	166 (36.7%)	31 (24.4%)	13 (11.8%)	766 (16.5%)
<b>Health Related Variables</b>					
Physical Disability	718 (18.1%)	86 (19.0%)	36 (28.3%)	40 (36.4%)	880 (18.9%)
Mental Illness	1090 (27.5%)	92 (20.4%)	33 (26.0%)	42 (38.2%)	1257 (27.0%)
Substance Abuse Issues	875 (22.1%)	109 (24.1%)	31 (24.4%)	36 (32.7%)	1051 (22.6%)

Appendix C. Odds Ratios and Associated 95% Confidence Intervals from the Four Multinomial Logistic Regression Models<sup>a</sup>

	Group 2 (Typical Transitional)	Group 3 (Atypical Transitional)	Group 4 (Potential Chronic)
<b>Model 1: Demographic Characteristics<sup>b</sup></b>			
Female	<b>1.283 (1.042-1.578)</b>	1.236 (0.853-1.790)	<b>0.631 (0.413-0.966)</b>
Higher age	1.015 (0.935-1.100)	1.079 (0.936-1.245)	<b>1.411 (1.244-1.600)</b>
Identifies as Hispanic	<b>1.653 (1.203-2.271)</b>	1.188 (0.607-2.323)	1.030 (0.520-2.040)
Primary Ethnicity			
Caucasian/White	Reference	Reference	Reference
Native Hawaiian	<b>1.789 (1.269-2.521)</b>	1.650 (0.903-3.017)	0.749 (0.423-1.329)
Micronesian	<b>2.945 (1.401-6.190)</b>	<b>2.902 (1.020-8.258)</b>	0.654 (0.222-1.930)
Filipino	<b>1.823 (1.146-2.900)</b>	1.235 (0.468-3.262)	0.853 (0.370-1.967)
African American/Black	<b>1.778 (1.016-3.111)</b>	2.473 (0.930-6.575)	0.696 (0.272-1.780)
Other Pacific Islander	<b>2.178 (1.315-3.609)</b>	1.687 (0.616-4.623)	0.370 (0.089-1.531)
Asian	<b>1.941 (1.141-3.302)</b>	1.059 (0.296-3.795)	0.553 (0.196-1.555)
Marshallese	<b>8.493 (4.077-17.693)</b>	<b>15.996 (5.466-46.812)</b>	0.192 (0.022-1.696)
Portuguese	1.406 (0.651-3.039)	<b>3.372 (1.093-10.403)</b>	1.598 (0.511-5.002)
Native American	0.256 (0.034-1.912)	2.381 (0.542-10.448)	1.143 (0.336-3.886)
COFA Status	<b>2.711 (1.368-5.376)</b>	<b>3.336 (1.330-8.370)</b>	<b>3.487 (1.227-9.906)</b>
Lifetime resident of HI	<b>2.393 (1.773-3.229)</b>	<b>2.209 (1.375-3.548)</b>	1.308 (0.807-2.121)
Island of Entry to Services			
O‘ahu	Reference	Reference	Reference
Maui	<b>0.602 (0.423-0.856)</b>	<b>0.405 (0.205-0.799)</b>	0.733 (0.426-1.261)
Hawai‘i	<b>0.161 (0.102-0.253)</b>	<b>0.020 (0.003-0.147)</b>	<b>0.179 (0.063-0.503)</b>
Kaua‘i	0.607 (0.356-1.033)	0.395 (0.113-1.386)	0.450 (0.140-1.448)
<b>Model 2: Household Composition</b>			
Larger Average Group Size	<b>1.498 (1.412-1.589)</b>	<b>1.278 (1.154-1.416)</b>	0.848 (0.670-1.073)
Household Composition			
Ever Entered as Couple	1.014 (0.620-1.660)	0.998 (0.415-2.399)	1.522 (0.748-3.098)
Ever Entered as Single	<b>1.791 (1.370-2.342)</b>	<b>2.088 (1.347-3.238)</b>	1.120 (0.682-1.840)
Parent Household			
Ever Entered as Two	<b>2.804 (2.146-3.664)</b>	<b>6.054 (3.886-9.433)</b>	1.157 (0.621-2.156)
Parent Household			
Ever Entered as	<b>3.238 (1.304-8.044)</b>	<b>12.949 (4.823-34.746)</b>	3.159 (0.334-29.924)
Intergenerational			
Family			
<b>Model 3: Background Experiences</b>			
History of Veteran Status	0.941 (0.676-1.309)	1.080 (0.602-1.937)	1.191 (0.675-2.099)
Any Criminal Justice	0.927 (0.718-1.197)	0.672 (0.418-1.081)	1.279 (0.821-1.993)
History			
History of Domestic	1.055 (0.804-1.384)	1.531 (0.985-2.380)	0.891 (0.533-1.491)
Violence			
Less than High School	1.216 (0.963-1.536)	<b>2.506 (1.717-3.658)</b>	1.060 (0.671-1.673)
Diploma or GED			
Employed at Entry	<b>3.259 (2.624-4.047)</b>	<b>2.009 (1.311-3.079)</b>	0.739 (0.420-1.301)
<b>Model 4: Health Related Variables</b>			
Physical Disability	1.160 (0.892-1.508)	<b>1.869 (1.199-2.913)</b>	<b>2.229 (1.424-3.491)</b>
Mental Illness	<b>0.557 (0.443-0.717)</b>	0.669 (0.429-1.044)	1.024 (0.657-1.595)
Substance Abuse Issues	1.212 (0.959-1.533)	1.076 (0.709-1.633)	1.358 (0.882-2.090)

Bold if significant at 0.05 level.

Notes: <sup>a</sup> The low service use trajectory (Group 1) was used as the reference group

<sup>b</sup>The sample size for this model was slightly smaller than for the other models ( $N = 4,630$  vs  $4,655$ ). Because the race variables had a small amount of missing data, in order to reduce the complexity of the model, some ( $n = 25$ ) individuals were excluded from the analysis for this model so as to simplify the missing data estimation.

## Appendix D. Important Notes and Limitations

It should be noted that while characteristics such as ethnicity, citizen status, residence in the state, family composition, etc. were found to be significantly associated with group membership, the increased or decreased probabilities of group membership described above can be deceptive if not interpreted with care. It is true, for example, that having a COFA National citizen status was associated with increased odds of membership in the typical transitional, atypical transitional, and potential chronic service use groups. However, it is also true that most of the COFA Nationals (63.1%) in the sample, in fact, followed the Low Service Use trajectory. Similarly, while being Native Hawaiian or Micronesian, etc. was associated with higher odds of Typical Transitional Service Use, most Native Hawaiians (84.2%) and Micronesians (69.0%), as well as the other groups discussed, followed the Low Service Use trajectory. ***That is to say, that the results described above addressed disproportionate likelihoods of belonging to one group or another rather than describing the most likely path of those fitting that characteristic.***

Additionally, the approach in this study has a number of limitations that are important to recognize. First, the data presented here are limited to those homeless individuals who have accessed at least one of the services in the State of Hawai'i that enters its service activities into the HMIS database. As such, ***it does not include homeless individuals who accessed alternative types of services (e.g., less formal church-run shelters or soup kitchens, etc.) or who choose for whatever reason not to access services at all.*** Because the characteristics and homeless trajectories of those who do not access mainstream homeless services might be different from those who are in the HMIS database, the results from the present study may not generalize to all homeless individuals in the state.

***Though the analyses were able to track HMIS service use, they were not able to track service users outside of that system.*** Some in the sample could have accessed services outside of the HMIS, artificially deflating their rates of service use in the present study. Not being able to track the service users outside of the HMIS system also resulted in an inability to determine the fate of those who had left the system. It is very likely that some portion of those with low levels of service use exited the HMIS system and returned to literal homelessness without ever accessing services again during the study period. Others still could have left the state but remained homeless, entered an institution (psychiatric hospital, jail, etc.), or passed away. Alternatively, some of those who were classified as “newcomers” in this study may not have, in fact, been newly homeless as they could have had service usage in other states, were using homeless services prior to the institution of the tracking system (about 2006), or had been previously homeless but chose not to access HMIS services.

Therefore, “leaving” (or failing to show up in) HMIS services cannot be considered an unambiguous indication of having left homelessness. Despite this, I do believe that the approach taken here of looking at service usage patterns can be practical as a rough guide in that most of those who used high amounts of HMIS services were indeed experiencing more prolonged and complicated homeless journeys and most of those who left and did not reenter services were likely headed to more stable housing. ***However, the proportions of individuals who follow each trajectory should be understood as exploratory estimates at best. The present analyses were vulnerable to overestimating those in the low service use group because they risk categorizing***

***several unfavorable outcomes (institutionalization, death, etc.) as low use. Additionally, there was the potential for underestimating problematic trajectories in that the approach did not have access to those who choose not to access HMIS services but experienced prolonged homelessness.***

Another limitation is related to the availability and quality of the variables used to compare the four service groups. Many of the variables underwent extensive processing, such as combining information across time, to creatively solve issues of missing data. This approach is vulnerable to introducing error (e.g., false positives) to the dataset. It also oversimplifies the dynamic nature of the variables involved. Individuals often move from one category to another (going from having substance abuse issues to not, having children, separating from partners, etc.), and in the present study these characteristics were treated as stable rather than time-varying. Additionally, there are certainly many other important factors that influence homeless trajectories, such as level of income, that were simply not available with high enough quality for use.

Most of these limitations were related to the fact that administrative data were used. This, by necessity, limited the analytical choices to those supported by the data at hand. The use of the HMIS data did, however, allow for a larger scale analysis than would have been possible otherwise, enabling us to track the service usage patterns of 4,655 individuals across 4 years and throughout the State of Hawai'i. This kind of system-wide analysis is rarely possible without large administrative systems like the HMIS database and we are very grateful that we were given the opportunity to explore these questions with this dataset.