

**The University of Kansas  
School of Social Welfare  
Office of Aging and Long-Term Care**

**Longitudinal Study of Customers  
Diverted through the CARE Program:  
Summary of Key Policy Findings**

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# *The Longitudinal Study of Customers Diverted through the CARE Program: Summary of Key Policy Findings*

## **Executive Summary**

### **Purpose**

The Kansas Department on Aging (KDOA) and the Kansas Department of Social and Rehabilitation Services (SRS) contracted with the Office of Aging and Long Term Care (OALTC) at the University of Kansas School of Social Welfare to conduct *The Longitudinal Study of Customers Diverted through the CARE Program*. The overall purpose of this multi-year project was to identify risk factors for nursing facility (NF) admission and examine publicly funded community based services and their relationship to community tenure for older adults in Kansas. The OALTC staff analyzed data on customers who applied for NF admission and received the CARE Assessment to identify differences and similarities between diverted and non-diverted customers, and tracked the diverted customers for 18 months to monitor service use and length of community tenure. For purposes of this report, this project is referred to as the Diversion Study.

The Diversion Study final report has been divided into two documents. The document entitled “Summary of Key Policy Findings” summarizes and discusses the overall findings and is referred to as the Final Report. The Final Report is organized into sections related to the major study questions: 1) Key Differences Between Diverted and Non-Diverted customers; and; 2) Community Tenure of Diverted Customers. Each section begins with the questions that guided the analyses and a brief introduction to the analytic procedures. The Final Report ends with a discussion of the implications for policy makers and legislators, and a conclusion section.

A Technical Report has also been written to provide greater detail concerning the methods, analyses and findings. The two-document approach provides a user-friendly format for this comprehensive report. The Technical Report includes the background of the study, a review of relevant literature, the research questions, research design and the methodologies for conducting all the analyses, and a complete summary of results from each analysis. There is also an Appendix that contains documents and materials referenced in both the Final Report and Technical Report.

### **Study Methodology**

Both quantitative and qualitative methods were used to develop a more complete understanding of diversion and community tenure. The Andersen Social-Behavioral Model of Health Care Use, a conceptual framework that identifies predisposing, enabling, and need factors as key to explaining the use of health services, informed the Diversion Study. During this project OALTC staff analyzed a cross-sectional sample of older adults who had a CARE Assessment in May 1999, March, April, or August 2000. There were 600 diverted customers and 2282 non-diverted customers in the sample. This sample was used to study the research questions for the project related to: diversion from nursing facility (NF), risk factors of NF admission, community tenure, customer’s decision-making process at time of the CARE Assessment, their perception of service-related quality of life, and informal support. In addition, qualitative data are presented,

drawing on face-to-face interviews conducted with a sub-sample of diverted customers (n = 69) in order to provide an understanding of their perceptions of service related quality of life and to provide further insight into the quantitative findings. Analyses of these qualitative findings are woven throughout the Final Report and the Technical Report.

The original study design was expanded in FY 2002 to include two additional investigations. These two studies were written as legislative briefs. For the first brief (Appendix M), OALTC staff analyzed data in order to: 1) determine the source of funding for in-home services diverted customers received; 2) analyze the reasons why diverted customers did not apply for Medicaid or state funded community based services, particularly those customers who permanently entered an NF with Medicaid as a payor source; and, 3) learn more about the informal support received by diverted customers. For the second brief (Appendix N), OALTC staff analyzed data in order to: 1) document the prevalence of early diversion and identify State Publicly Funded Services (SPFS), including Medicaid-HCBS/FE (Home and Community Based Services Frail Elderly Waiver) and SGF (State General Fund) services that non-diverted customers received prior to an NF admission; and; 2) explore whether individuals who received SPFS in the six months prior to their CARE assessment were more impaired upon entry into the NF than persons who did not receive SPFS. Findings from these two additional studies are included in the Final Report as appropriate and presented in greater detail in the Technical Report.

### **Overall Diversion Study Implications**

These findings and implications are based on quantitative and qualitative data collection and analyses over a three-year period. The key policy findings and related implications are organized based on themes from the research objectives. This section offers a summary of key policy findings and their implications.

#### **➤ State Publicly Funded Services are Cost Effective**

**The total annual state cost savings based on actual service data for the diverted customers in the sample is estimated to be \$1.4 million for diverted customers who received SGF and/or OAA services and \$1.7 million for HCBS-FE services, including TCM. The grand total yearly cost savings, based on the analysis, is \$3.1 million.**

The analysis was based on the actual cost of SPFS for all diverted customers tracked for 18 months after the CARE Assessment. The cost analysis demonstrates that diverting and maintaining older adults in the community with SPFS as an alternative to the NF provides a good return on the investment of tax dollars. The SGF and/or OAA services were used an average of about four months and the Medicaid-HCBS/FE and TCM services were used an average of about 11 months. The total state cost saving for the four waves in the sample was \$1,045,211.20. When these data are extrapolated out for a year of diversions, the total state savings for all customers diverted over a 12-month period are over 3 million dollars.

➤ **Diverted Customers had High Rates of Community Tenure**

**When the tracking of diverted customers ended 18 months after their CARE Assessment, 48.2% (289) of diverted customers were still living in the community.**

The importance of this finding is underscored by the fact that these diverted customers had in fact applied for an NF admission but were diverted. Within 12 months of the CARE Assessment, the proportion of diverted customers who permanently entered an NF had stabilized at 20%. New admissions were being balanced by deaths of previously diverted customers who had been admitted and subsequently died in the NF. Only 171 (28.5%) of the diverted customers had been permanently admitted to the NF by the 18<sup>th</sup> month of follow-up. Also, 139 (23%) of the diverted customers were in the community when they died. It appears that if the older adult is able to remain in the community past the first 180 days, their condition stabilizes and they are able to maintain community tenure for long periods of time. These findings point to the effectiveness of the CARE Assessment process in providing older adults and their families with needed information regarding alternative options to NF care. The quantitative findings are also supported by the qualitative data. Interviewees reported that they were unfamiliar with community based in-home services and that the case manager or CARE assessor provided timely information for immediate use. The CARE Assessment process is a valuable tool in helping diverted customers and their families identify services/options that help them remain in the community.

➤ **State Publicly Funded Services and Informal Support Play an Important Role in Diversion and Community Tenure**

**Diverted customers who received state publicly funded services maintained high rates of community tenure. Additionally, customers indicated that the state publicly funded services they received prevented them from entering an NF.**

Out of the diverted customers still in the community 18 months after the CARE Assessment, 70 (24.2%) were receiving Medicaid-HCBS/FE and SGF and/or OAA services. In addition, of the 102 diverted customers who were receiving SPFS at the 30<sup>th</sup> day after the CARE Assessment, 40 (39.2%) were still in the community at the 540<sup>th</sup> day. The largest decrease in the rate of SPFS customers residing in the community occurred between the 90<sup>th</sup> and 180<sup>th</sup> day after the CARE Assessment. Both the community tenure and interview data show that if SPFS are available to help customers through a health crisis point, they are able to continue to maintain community tenure. Diverted customers who were interviewed (n=69) reported that state publicly funded services were essential and could not easily be replaced. Many customers and primary caregivers participating in the interviews reported that each service they received was equally essential and that without the services they would have to go to an NF. Overall, 54% of the customers interviewed for the qualitative portion of the study indicated that they could not live at home without services. All of these diverted interviewees had a CARE Assessment, so it is clear that without services, they would be at high risk of an NF placement. These findings indicate that SPFS play a crucial role in helping customers maintain community tenure. However, the timely provision of SPFS is essential in maintaining customers in the community.

**The use of Medicaid-HCBS/FE and SGF and/or OAA before an NF admission appears to have an impact on NF length of stay.**

Among non-diverted customers who were short-term Medicaid NF residents, 48 (64.9%) used SPFS prior to admission compared to 178 (42.9%) of the permanent Medicaid NF residents. This suggests that prior knowledge and involvement with SPFS facilitates coordination of discharge and re-entry in the community. In addition, approximately 68% of the non-diverted customers who became permanent NF residents and used Medicaid to pay for NF care did not use Medicaid-HCBS/FE services before entering the NF. This might help to explain why Medicaid is a risk factor for NF admission, since many older adults who would likely be Medicaid-HCBS/FE eligible, did not use community-based service before an NF admission. As noted previously, if SPFS are available in a timely manner to address the customer's immediate health care crisis, it is possible their condition will stabilize and they can remain in the community. Additional efforts to reduce barriers in applying for SPFS, especially Medicaid-HCBS/FE, would likely prove cost effective for the state by enabling a higher proportion of lower-income older adults to receive long-term care in the community.

**For many customers the combination of state publicly funded services and informal support was essential for diversion and maintaining community tenure.**

Approximately 26% of diverted customers in one of the sample cohorts received a combination of SPFS and informal services. The analysis of informal support (n = 31) provided some insights about how older Kansans rely on their informal supports to maintain their community tenure. For instance, informal support, by and large, was provided by one family member, and complemented the SPFS received. Customers reported that it was the combination of SPFS and informal services together that enabled them to be diverted and maintain community tenure. In addition, the qualitative interviews revealed numerous examples that illustrated how older adults could live alone and remain in the community with a combination of SPFS and informal support. The quantitative analysis identified half of the diverted customers did live alone. In addition, two-thirds of the diverted customers interviewed for the qualitative analysis lived alone. Fifty-nine percent of the interviewed diverted customers living alone did not think they could stay at home without publicly funded services. These interviewees were not socially isolated as demonstrated by the daily contact from primary caregivers for more than 70% of the interviewed customers. Over 50% of the daily contact was face-to-face. If CARE assessors and case managers are alerted to the special needs of high functioning customers living alone, their effort to link these customers to in-home community based services is particularly cost-effective.

These findings highlight the importance of the combination of services older adults receive in maintaining community tenure. The fact that older adults receiving these services were able to maintain high rates of community tenure points to the beneficial impact that SPFS have in supporting informal caregivers. These findings also highlight the importance of the state and federal caregiver initiatives to support caregivers. Any changes in SPFS provided must be carefully considered in light of the impact the change would have on the informal caregiving system that helps older adults maintain community tenure and delay an NF admission.

➤ **Diverted and Non-Diverted Customers had Similar LTC Threshold Scores**

**The difference in the mean LTC Threshold Score between diverted (68.5) and non-diverted (74.0) customers was statistically significant but smaller than expected.**

The expectation was that there would be a larger difference between diverted and non-diverted customers' LTC scores. This finding suggests that the functional status at the time of the CARE Assessment may not be the primary predictor of whether older adults will be diverted or non-diverted. The overlap of LTC scores suggests that some non-diverted customers could be residing in the community if services were available in a timely manner. Additional analyses conducted in FY 2001 found that low-income older adults (e.g. they anticipate Medicaid as a potential payment source for support services) may not have as many home and community based options and therefore enter an NF at an earlier stage than their private pay counterparts. Qualitative analysis of interviews with diverted customers suggests that these older adults' needs could be met in a community setting if sufficient support and services are available. If eligible, these customers could use Medicaid-HCBS/FE to cost effectively remain in the community. Targeting these relatively well functioning customers for increased outreach, and further examination of service availability, is warranted. The analysis of qualitative interviews indicated that timely access to in-home services is crucial for community tenure for frail older adults, and that resource acquisition can be a serious problem for low-income older adults.

➤ **A Number of Factors are Associated with Increased Community Tenure**

**Diverted customers who indicated Medicaid as a potential payment source for support services are two times more likely to permanently enter an NF. However, the use of state publicly funded services, including Medicaid-HCBS/FE, may reduce this risk.**

In a statistical analysis that included all diverted customers, the variable "Medicaid as a potential payment source for support services" (a proxy for low-income) was a highly significant risk factor of permanent NF admission. However, diverted customers who actually used Medicaid-HCBS/FE or SGF and/or OAA services (meals were not included in the analysis) did not have an increased risk of permanent NF admission. Since these service customers are, by definition, low-income, it appears that using SPFS mitigates their risk of NF admission. As noted previously, the cost analysis demonstrates that diverting and maintaining older adults in the community with SPFS, as an alternative to the NF is cost effective for the state. Increased outreach to low-income customers and reducing the barriers (perceived ineligibility) to applying for Medicaid-HCBS/FE would help these customers access services in a timely manner at the point of a health care crisis and reduce their vulnerability to an NF admission.

**Support availability contributes to the community tenure of diverted customers and the risk of an NF admission is reduced by 16% when part time intermittent support is available.**

The fact that support availability is instrumental in reducing the risk of an NF admission is important because the level of support can be increased either through formal sources or informal sources to help older adults remain in the community. It is important to understand that the



combination of informal and formal services is unique for each person. It is in the uniqueness that opportunities exist for case managers to bring together resources to help older adults be diverted and maintain community tenure.

**Low-income diverted customers in urban areas are at 35% more risk of permanent NF admission than low-income diverted customers in rural areas. In addition, low-income diverted customers living alone had more than twice the risk of permanent NF admission.**

The risk of permanent NF admission for low-income urban residents may be the result of social isolation and the lack of social resources, such as family or friends. The finding suggests the image of the low-income, older adult residing in a single-room occupancy hotel in the inner city is accurate. These older adults could benefit from outreach efforts to help them think about and prepare for future LTC needs. In addition, case managers and AAAs may need to work with other social service agencies and providers, as well as churches and service organizations, to develop informal networks to make up for the absence of support from family and friends.

**Older adults who were in AL at the 30-Day CARE Follow-Up were at greater risk (1.5 times) of permanent NF admission.**

In an analysis that included all diverted customers, living in AL was statistically significant as a risk factor for permanent NF admission. These findings suggest that private-pay diverted customers in AL may be spending down their assets and then transferring to an NF on Medicaid. This finding warrants further examination and analysis. It is important to note that the exception to this finding of greater risk in AL is that low-income diverted customers living in AL were not at increased risk of NF admission. This finding supports the use of Medicaid-HCBS/FE in AL as a cost-effective alternative method that delays NF admission.

➤ **The Decision to Enter a Nursing Facility is a Complex Issue**

**Interviews with diverted customers and their primary caregivers illustrated how older adults are using NF admission for purposes other than permanent admission. The sequence of steps and decision-making when considering an NF admission suggest an NF admission does not follow a linear process of declining function.**

Decision-making and transitions at the time of an NF placement are very complex. Diverted customers used different paths at the time of the CARE Assessment. Many customers moved from the hospital to the NF for rehabilitative care and eventually back to the community, while others remained in their own home from the time of the CARE Assessment. Another important finding is that many diverted customers enter the NF for a short period, but then re-enter the community and remain there. As noted earlier, over 60% of the diverted customers had a short NF stay prior to their diversion. Training would help providers and case managers enhance their understanding of paths from one setting to another. Efforts to enhance or develop services that support the different paths customers actually utilize could include case management from the point of hospitalization to return to the community.

**Many customers were unprepared for decision-making largely because of the unanticipated changes in their health status.**

It is clear that many older adults do not plan for the possibility of moving out of their home even if they are aware that their health condition has declined in recent years. The CARE Assessment was mainly used as the customers and their caregivers perceived that an NF placement was inevitable as a result of an unanticipated change in health status. However, there were some customers who used the CARE Assessment as a part of their advanced care planning. Increased education about planning for future long-term care needs is needed.

**The case a manager played a vital role during the decision-making process when older adults were considering an NF and this was consistently reported by diverted customers during the qualitative interviews.**

Interviewees indicated that the decision-making process was complex, and multiple opinions influence decision-making. In the hospital, the decision also had to be made under pressure to discharge. Case managers and CARE Assessors need to be involved early in the decision-making process and older adults and family members need more information regarding options before facing the decision to apply for NF admission. Some interviewed customers indicated that they did not know home and community based services were available, so they applied for and entered an NF. **Knowledge gained through the CARE Assessment process made it possible for them to plan to return home. Had they known about community-based services and been able to access them quickly, their NF admission might have been avoided.**

For those customers who are experiencing a gradual decline in their physical and cognitive functioning, they and their family caregivers need an opportunity to meet with a case manager to explore options for care well in advance of application for NF admission. Customers indicated that advocacy skills of case managers and their timely and consistent involvement with older adults at risk for a permanent NF placement can make an important difference in keeping frail older adults receiving publicly-funded service in the community.

## **Conclusion**

This study indicates that older adults who apply for an NF admission can be diverted and remain in the community for more than 18 months with the support of Medicaid-HCBS/FE and SGF and/or OAA services. Findings from the Diversion Study also illustrate that unless low-income older adults are encouraged to apply for SPFS they are at an increased risk of entering an NF. Diverted customers are able to remain in the community because of the combination of SPFS and informal support from family. The family member's assistance does not duplicate SPFS. Instead, diverted customers who were interviewed reported that SPFS and informal support complement each other. Therefore, changes in formal or informal support can impact the other.

Another finding from the Diversion Study was that low-income, diverted customers living in the most rural counties remained in the community longer than low-income diverted customers living in the largest urban counties. Practitioners working with older adults and state policy makers report that service providers in rural counties may have better services coordination

among each other. In addition, the older adults living in rural counties might have stronger ties to their community, which in turn supports their community tenure.

Finally, diverted customers living in assisted living facilities and using Medicaid-HCBS/FE are able to age in place. Continuing to develop Medicaid-HCBS/FE options for older adults in assisted living will establish cost effective alternatives to NF care. KDOA is currently working with providers to increase the number of assisted living facilities and this will enhance older adult's options to maintain their independence with assistance in the least restrictive environment.

The Diversion Study has been a successful collaboration between state policy makers and state university researchers. The findings have illustrated how older adults who were ready to enter an NF were able to maintain community tenure with the support of SPFS and informal support from family. The implications also provide examples of how policy and program enhancements to state community-based services can improve the likelihood that low-income older adults will remain in the community for long periods of time.

## Part I. Introduction

### A) Purpose and Significance of The Diversion Study

This report presents the results of the *Longitudinal Study of Customers Diverted through the CARE Program*. The overall purpose of this project was the analysis of **CARE Assessment**<sup>1</sup> data to identify risk factors for nursing facility (NF) admission and to examine publicly funded **community-based services** and their relationship to maintaining **community tenure** for older adults in Kansas.

The central goals of this three-year project were:

- (a) To identify and compare the characteristics of customers diverted from NF placement to those not diverted from NF placement;
- (b) To measure the community tenure and publicly funded community-based service utilization of customers diverted from NF over a period of 18 months; and
- (c) To study longitudinally the overall effectiveness of community-based services in reducing NF admissions.

The *Longitudinal Study of Customers Diverted through the CARE Program* developed as a result of discussion and planning between the Kansas Department on Aging Program Evaluation and **CARE Program** staff (KDOA), the Kansas Department of Social and Rehabilitation Services (SRS), and the Office of Aging and Long-Term Care at the University of Kansas School of Social Welfare (OALTC).

For purposes of this report, this project will be referred to as the Diversion Study. Diversion occurs when “individuals who have been assessed for potential nursing facility placement are residing in community settings with services or are living in board and care facilities when the **30 Day Follow-Up** contact is made” (CARE Annual Report, December 30, 1998, page 5).

A primary interest emerging from these discussions was how publicly funded community-based services contribute to the length of time diverted customers remain in the community after a CARE Assessment. KDOA was interested in enhancing their knowledge regarding the conditions that placed older Kansans at risk of **permanent nursing facility admission**. It was believed that information about customers applying for NF admission and the effectiveness of community-based services in achieving and maintaining NF diversion could inform and benefit long-term care policy decision-making in Kansas. The need for this information takes on increased significance in light of the following facts about older Kansans.

- The proportion of the older adult population over age 65 in Kansas is approximately 13.3% compared to 12.4% nationally. Kansas ranked 17<sup>th</sup> on this indicator in comparison with other states (U.S. Bureau of the Census, 2001).

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<sup>1</sup> A glossary of terms has been included with this report. When a word or phrase is in bold, the corresponding definition will be found in the glossary at the end of this report.

- The oldest old, age 85 years and older, are approximately 1.9% of the population in Kansas compared to 1.5% nationally (Administration on Aging, 2002).
- The percent of Medicaid dollars spent on the elderly in Kansas during 2000 was comparable to the national percentage, however over 50% of the Medicaid dollars were spent on long term care in Kansas compared to 34.8% nationally (AARP, 2001).
- Only 7.9% of older Kansans were below the poverty level compared to 10.1% nationally from 1998 to 2000, although 32.5% of older Kansans below the poverty level were residents in nursing facilities compared to 29.9% nationally (U.S. Bureau of the Census, June 2001).

State policy makers and legislators have the challenge of developing cost effective programs for older Kansans that can delay an NF admission. State officials are faced with maintaining and developing Long-Term Care (LTC) programs and services, relying on federal and state funding for services (Medicaid and Older Americans Act), while struggling with the financial realities of uncertain tax revenues for state general funded (SGF) programs. The information from this project can potentially result in more efficient use of these resources; for example, targeting Medicaid and other publicly funded community-based services to the populations and settings where they can have the greatest impact.

To carry out the Diversion Study, OALTC analyzed a cohort comprised of older Kansans who had a CARE Assessment in May 1999, March, April, or August 2000. Study participants were followed for a year and a half in order to determine: 1) differences between customers who were diverted or non-diverted from NF, 2) risk factors for NF admission, 3) community tenure of diverted customers, 4) diverted customer's decision-making process at time of the CARE Assessment, 5) customers' perceptions of service-related quality of life, and 6) the role of **informal support** in maintaining community tenure. The Diversion Study was a three-year project conducted from FY 2000 through FY 2002. The following report summarizes the study findings.

## **B) Format and Content of The Diversion Study Report**

The Diversion Study final report has been divided into two documents. The document entitled "Summary of Key Policy Findings" summarizes and discusses the overall findings and is referred to as the Final Report. A Technical Report has also been written to provide greater detail concerning the methods, analyses and findings. The two-document approach provides a user-friendly format for this comprehensive report.

The Final Report is organized into sections related to the major study questions: 1) Key Differences Between Diverted and Non-Diverted customers; and; 2) Community Tenure of Diverted Customers. Each section will begin with the questions that guided the analyses and a brief introduction to the analytic procedures. The findings are discussed in terms of the **Andersen Social-Behavioral Model of Health Care Use**, a conceptual framework that identifies **need**, **enabling**, and **predisposing factors** as key to explaining the use of health services. In addition, qualitative data are presented, drawing on face-to-face interviews

conducted with a sub-sample of diverted customers (n = 69) in order to provide an understanding of their perceptions of service related quality of life. Analyses of these findings are woven throughout both sections. The Final Report ends with a discussion of the implications for policy makers and legislators, and a conclusion section.

The Technical Report includes the background of the study, a review of relevant literature, the research questions, research design and the methodologies for conducting all the analyses, and a complete summary of results from each analysis. There is also an Appendix that contains documents and materials referenced in both the Final Report and Technical Report.

The original study design was expanded in FY2002 to include two additional investigations. These two studies were written as legislative briefs. For the first brief (Appendix M), OALTC staff analyzed data in order to: 1) determine the source of funding for in-home services diverted customers received; 2) analyze the reasons why diverted customers did not apply for Medicaid or state funded community based services, particularly those customers who entered NF with Medicaid as a payor source; and, 3) learn more about the informal support received by diverted customers. For the second brief (Appendix N), OALTC staff analyzed data in order to: 1) document the prevalence of early diversion and identify **State Publicly Funded Services (SPFS)**, including Medicaid-HCBS/FE (Home and Community Based Services Frail Elderly Waiver) and SGF (State General Fund) services that non-diverted customers received prior to NF admission; and; 2) explore whether individuals who received SPFS in the six months prior to their CARE assessment were more impaired upon entry into the NF than persons who did not receive SPFS. Findings from these two additional studies are included in the Final Report as appropriate and presented in greater detail in the Technical Report.

### **C) Data Parameters**

These findings presented in this report should be read and interpreted keeping in mind the specific characteristics of the data set they are based upon and the specific focus of the study. The data, collected by OALTC from KDOA and other public sources (refer to Technical Report and Appendix B for a complete listing), contain several design and measurement features that should be noted.

- The Diversion Study was authorized by KDOA for the purpose of studying the impact of State Publicly Funded Services (SPFS) in relation to older Kansans who had applied for NF placement. Thus, neither the use of privately paid services nor informal services, were specified for the entire sample in the study. Some information on these two forms of care was gathered in the qualitative portions of the Diversion Study.
- Community Tenure follow-up in the Diversion Study captured 18 months post-CARE Assessment. Surprisingly, study findings show that some 48% of diverted individuals were still residing in the community at the 18-month point. For these individuals, the benefits of SPFS are still accruing and will continue to do so until either death or NF placement occurs. Thus, the full measure of the impact of SPFS on diversion would require a longer follow-up period.
- CARE Assessment data currently does not include information on either marital status or income level of customers. As a proxy for income level, customer expectation regarding

Medicaid as a form of payment of support services was used, as well as customer's actual use of SPFS.

- Other studies of NF placement have found that system supply characteristics, such as the availability of NF beds and home health services, predict NF placement (Penrod, 2001). Community tenure for diverted customers in Kansas might also be affected by such factors; however, they were not included in the scope of the current research contract.
- Most predictors for length of community tenure in this data set were derived from data collected at the time of the CARE Assessment. Functional status and availability of caregiver support at the time of the CARE Assessment were the measures used. Data to reflect *changes* in these factors that occurred after the CARE Assessment were, for the most part, unavailable. A notable exception is that SPFS data and residential status were collected continually over the 18 months of follow-up, so that patterns of use of these services and place of residence could be included in the analysis.

The analyses from this study have generated many new findings of interest with implications for policy makers. The databases created for *The Longitudinal Study of Customers Diverted through the CARE Program* are a rich source of information regarding older adults' use of publicly funded and informal services in relation to diversion and community tenure. They also contain in-depth information about the decision making process at the time of the CARE Assessment, service-related quality of life and the role of informal support.

## Part II: Key Differences Between Diverted and Non-Diverted Customers

This component of the project examined the entire study cohort at the 30<sup>th</sup> day after the CARE Assessment, comparing older adults who had been admitted to NF (non-diverted) to those who were diverted and, therefore, residing in the community. The purpose was to identify similarities and differences between diverted (N = 600) and non-diverted (N = 2282) customers, using statistical analysis of characteristics measured at the time of the CARE Assessment (Appendix A). The intent was to learn which factors distinguished customers who were diverted; thereby providing insight into the conditions that might place older adults at risk of NF admission. For example, timely access to community-based services could be a barrier that prevents diversion. As a result, policies could be developed to help eliminate the barriers that prevent older adults from remaining in the community.

### A) Descriptive Summary of Diverted and Non-diverted Customers

At the beginning of the 18 months of follow-up, 79.2% (N=2282) of the CARE cohort were non-diverted and 20.8% (N=600)<sup>2</sup> were diverted. Unexpectedly, it was found that over 60% of the diverted customers had also utilized NF for temporary rehabilitative care and had returned to the community by the time of the CARE 30-Day Follow-Up (Appendix C).

Diverted and non-diverted customers can be distinguished on the basis of five policy-related questions:

- What prompts an older adult to apply for NF admission?
- Who applies for NF admission in Kansas?
- Where are the majority of CARE Assessments completed?
- In what ways are diverted and non-diverted older adults similar?
- In what ways are diverted and non-diverted older adults different?

The answer to each of these questions is provided in the text below.

#### ➤ 1. What prompts an older adult to apply for NF admission?

*Changes in health status prompt older adults to seek NF admission.* A health crisis often leads to help seeking behavior and creates an opportunity to link older adults to long-term care either in the NF or in the community. Many times family members are available to assist the older adult or have already been providing needed assistance. However, the change in the older adult's functional ability requires formal assistance.

Although both diverted and non-diverted customers have difficulties with activities of daily living (ADLs) and instrumental activities of daily living (IADLs), the type and degree of impairment affects their need for care. Family can provide some care, but some care must be provided by formal sources. In other situations, care is required on a continuous basis. If formal and informal support is not available to provide the amount and frequency of care needed, older

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<sup>2</sup> There were 600 cases of diverted customers; however there were only 599 unduplicated diverted customers.



adults must consider NF placement. In the Diversion Study, OALTC found NF and community-based services were increasingly being combined in ways that resulted in surprisingly longer periods of community tenure.

➤ **2. Who applies for nursing facility admission in Kansas?**

*The average Kansan seeking NF admission in the study sample is a woman, 83 years old. Sixty-six percent of the cohort in this study were women. Overall, 45% of older Kansans seeking NF admission lived in an urban area (more than 250,000 people) while 19% lived in communities of 2,500 to 19,999, and 11% lived in communities with less than 2,500 people. A complete set of descriptive and demographic findings are provided in Tables 1-7 in the Technical Report.*

➤ **3. Where are the majority of CARE Assessments completed?**

*Approximately 60% of all CARE Assessments were completed while customers were in the hospital. Most CARE Assessments involved individuals who were recovering from various medical conditions and were unable to return to their homes following hospital discharge. However, the CARE Assessment process often provides information about **community based services**, making it possible for customers to re-enter the community after a short period of rehabilitative care.*

**Case Illustration: CARE Assessment completed in the hospital**

Mildred had open-heart surgery. She was in the hospital for the operation and post-surgery recovery and later discharged to her home. However, when she went home, she quickly found out that she was not well enough to live alone. On the following day, Mildred's daughter spoke with the doctor about readmission to the hospital. She received a CARE Assessment in the hospital with a plan for admission to a nursing facility for rehabilitation. While recuperating in the nursing facility, Mildred and her daughter met with an Area Agency on Aging (AAA) case manager to explore service options for home care. Her case manager arranged meals-on-wheels, home making and personal attendant care service. Four weeks later, Mary was able to return home from the NF.

Interviews conducted with diverted customers provided a greater understanding about the transitions from one level of care to another that followed the CARE Assessment. Decisions based on discussions of appropriate care arrangements and settings forced many diverted customers to move more than once. Figure 1 below displays the different sequence of steps the diverted customers went through to maintain community residence from the point that they received a CARE Assessment to the residence at the time of the interview.

**Figure 1**  
**Different Relocation Processes to Diversion**

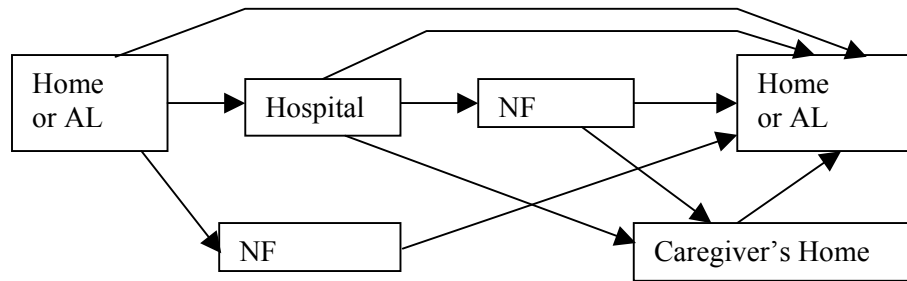


Figure 1 illustrates that community tenure is a dynamic and sometimes transitory process that moves in many directions. Moving through these sequences of steps, the majority of diverted customers made decisions incrementally. The decisions and ultimately the sequence of steps followed were based on the total assessment of customers’ health and functional status, the family caregivers’ capacity to provide care, and the availability of in-home services. In addition, the existence of funds (Medicare, Medicaid or private funds) to cover the cost of hospitalization, NF stay, and/or Assisted Living (AL) or residential cares influenced the process and steps.

Community tenure was maintained because older adults’ and professionals’ beliefs about disability and subsequent care arrangements were viewed in a dynamic, responsive way, as opposed to the traditional linear continuum of care. Figure 1 and the concept of community tenure provide a framework and the opportunity to re-vision direct practice and policy in long-term care. Evaluating the care needs of older adults requires involving and supporting older adults when determining the timing and intensity of services to maintain their community tenure. Best practices for community tenure include the ongoing assessment and care coordination of services for older adults and their support systems. Support systems include family and formal service providers working collaboratively to augment existing supports. Long-term care practice and policy require close monitoring to achieve desired outcomes.

These sequences of steps can also be categorized into three major paths or outcomes:

- No relocation (Path A): The CARE Assessment was conducted at home and the customer was able to stay at home without any relocation;
- Temporary relocation through institutions (Path B): Relocation processes that involve hospitalization and/or NF placement before returning home;
- An AL facility as the final choice (Path C): Some customers received the CARE Assessment at AL facilities and remained at the same place. Some moved into AL facilities from home.

In general, Path B and C seemed to require a more complex decision-making process because more issues had to be considered and these situations involved more health care and social service workers. In Path B, the majority of the customers had experienced a medical emergency that involved an injury or exacerbation of an existing chronic illness. In these cases, customers would undergo a period of rehabilitation and recuperation. A critical component of the decision-

making was the degree of recovery to regain physical functioning such as walking and dressing. In Path C, the staff at an AL facility often took part in the decision-making process as customers attempted to stay or apply for AL facilities. It needs to be noted that some customers who were on Path C experienced hospitalization and NF placement. These paths reflect a change in the use of NF care for rehabilitative care and have implications for social policy regarding the delivery of acute care and community-based services (Kane, Reinardy, Penrod, & Huck, 1999).

As noted previously, CARE Assessment customers went through a complex decision-making process when considering NF admission and this included assessing their needs for care when considering NF admission. The CARE Program plays an important role in assessing individuals' need for specialized services, assessing their functional ability, available support systems, and provides information about LTC options. The analysis of the CARE Assessment data on functional ability and support systems is provided next.

➤ **4. In what ways are diverted and non-diverted older adults similar?**

Data gathered through the CARE Assessment showed the following similarities between diverted and non-diverted customers. Refer to the Technical Report for the complete results.

- A majority (60%) of both groups reported private funds would be a possible source to pay for support services.
- More than 50% of the diverted and non-diverted customers seeking NF admission had full-time or routine part-time support available.
- Abuse, neglect, and exploitation were reported problems for the diverted or non-diverted customers approximately 8.5% of the time.
- Approximately 90% of the diverted and non-diverted customers had problems with falls and unsteadiness.

Despite the fact that both diverted and non-diverted customers had full-time or part-time support, non-diverted customers' primary caregivers may have reached a limit in their ability to continue to provide care. Many of these non-diverted customers' and primary caregivers' needs could possibly be met through innovative programs and services.

➤ **5. In what ways are diverted and non-diverted older adults different?**

The following additional factors also characterize the differences between diverted and non-diverted customers. Refer to the Technical Report for the complete results including specific differences in ADLs and IADLs.

- Non-diverted customers reported they would use Medicaid as a possible source of payment for support services in the community in greater proportion than the diverted customers (23% versus 18%).

- Diverted customers were their own legal and financial representatives in greater proportion than non-diverted customers (52% versus 39%).
- Diverted customers were more likely to live alone than non-diverted customers (49% versus 42%). However, living alone should not be interpreted as social isolation. Some older adults who live alone receive social support from family on a daily basis.
- One third of diverted customers had no problems with memory/recall compared to 20% of the non-diverted customers. One third of non-diverted customers had problems in all areas of memory/recall compared to 24% of diverted customers.
- Non-diverted customers were more likely to have incontinence problems frequently or all the time.
- The Long-Term Care Threshold Score for diverted customers (65.8) was lower than non-diverted customers (74.0). The difference was statistically significant. For information on the LTC Threshold Score computation, refer to Appendix D.

The **Long-Term Care Threshold Score (LTC Score)** is a composite score based on ADLs, IADLs, memory/recall, continence, falls, support availability, and abuse, neglect, and exploitation. The composite score permits a global assessment of the functional status of the older adult seeking NF care and can be used to evaluate their appropriateness for this level of care. The scores ranged from a low of 3 to a high of 125 for both groups and a low LTC score indicates the older adult is less impaired. *The difference in the mean LTC Threshold Score between diverted (68.5) and non-diverted (74.0) customers was statistically significant.* However, the expectation was that there would be a larger difference between diverted and non-diverted customers in the LTC scores. This prompted some additional analysis.

Chart 1 displays the LTC score for diverted customers compared to non-diverted customers in 10 point increments. This provides a visual representation that permits examination of the scores comparing both groups simultaneously.

**Chart 1:  
Comparison of LTC Threshold Scores  
of Diverted (N=596) and Non-diverted (N=2,258) Individuals**

These do not total the “N of 2282” because of missing values.

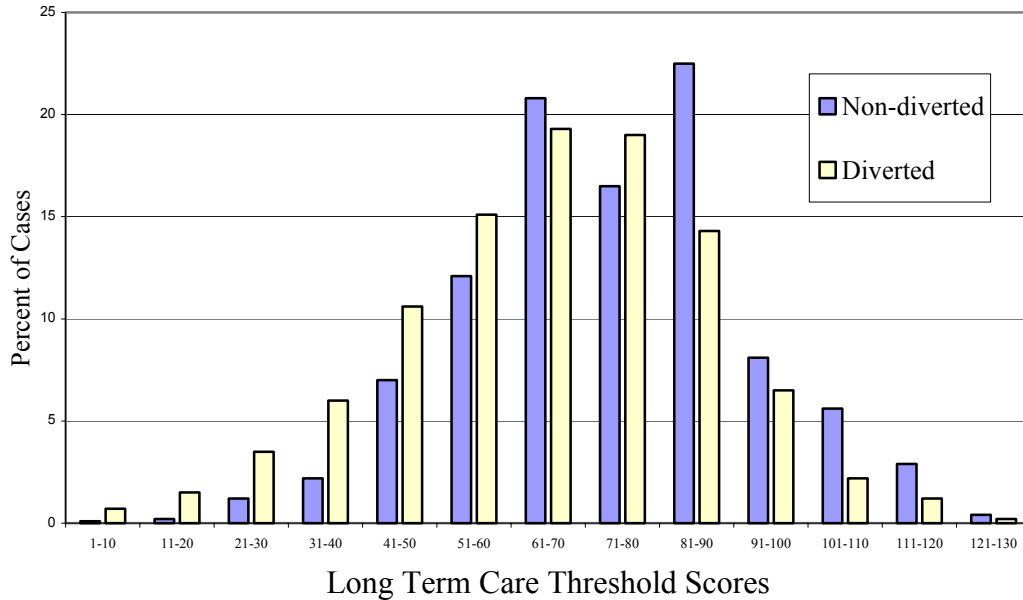


Chart 1 illustrates how the LTC Threshold Scores were distributed for both diverted and non-diverted customers. *The most important finding from this analysis is that some non-diverted customers with low LTC Threshold Scores entered NFs and some diverted customers with high LTC Threshold Scores were able to remain in the community.* As Chart 1 illustrates, diverted and non-diverted customers were surprisingly similar in their distribution of the LTC score. The analysis of LTC Threshold Scores indicates that the difference between the diverted and non-diverted customers’ LTC scores was statistically significant; however, the difference was fairly small. As previously mentioned, the expectation would be a larger difference in LTC scores between diverted and non-diverted customers.

The project also included collecting qualitative data regarding informal and formal service support to identify how these factors would contribute to diversion of impaired older adults. Those findings are summarized in the text box below and help to provide a broader understanding about how older adults with high LTC scores are able to remain in the community.

### **Enabling Older Adults to Live in the Community after a Short NF Stay**

The findings from the qualitative study suggest that there are several critical factors that enabled older adults to stay in their home or return to the community after a short-term stay in a nursing facility.

- Availability of care through institutions and agencies

The availability of in-home services was clearly one of the crucial elements for older adults to stay or return home. Medicare home health and SPFS provided the formal assistance following hospitalization and NF care. In addition, the respondents' decisions were also affected by Medicare regulations that specify the length of the covered stay in the hospital or nursing facility.

- Obtaining information on services or benefits

Accessing information on in-home services, care facilities, and insurance benefits was critical in evaluating options for maintaining residence in the community. Many times older adults were unaware of community-based services. Older adults reported the information about services provided by case managers helped them to return to the community when they went to the NF for rehabilitative care.

- Availability of financial resources

In-home services or a short-term nursing home stay were arranged through private funds when the individual older adults or their families could afford to pay for the services and when no other options were available. For low-income diverted customers, Medicaid-HCBS/FE and SGF and/or OAA are the necessary financial resources that support their return to the community and maintenance of community tenure.

- Informal supports

In most cases, older adults relied on their family members and friends to provide assistance. Their help was especially crucial during the initial period after being discharged from the hospital or nursing home. Without the informal support in these situations, older adults would not have been able to return home.

### **B) Discriminant Analysis To Explain Diversion Status**

Discriminate Analysis was used to simultaneously compare and assess the relative importance of the factors that were found individually to distinguish diverted and non-diverted customers in our sample who had a CARE Assessment in May 1999, and March, April and August 2000. This section presents the summary of the results of the discriminant analysis (also refer to the Discriminant Analysis results in the Technical Report). The objective was to examine a set of assumed predictor variables (e.g., age, gender, whether the customer lived alone, urban/rural

residence, assessment location, payor status, ADL and IADL scores, and the problems and risks scores) to see how well they distinguished diverted from non-diverted customers.

The Andersen Social-Behavioral Model of Health Care Use provided conceptual grounding for these analyses. As noted in the literature review included in the Technical Report, the Andersen Social-Behavioral Model is widely utilized to understand patterns of health services use for older adults. The Andersen Model proposes three categories of factors to predict use of health service: predisposing, enabling and need factors. The predisposing factors reflect older adults' abilities to cope with presenting problems and include age, gender, marital status, and older adults' beliefs about health. Enabling factors include personal, family, and community characteristics that influence older adults' use of services. These include caregiver support and payment sources of formal support. Need factors refer to care requirements as perceived by older adults and assessed by health service providers.

This model is appropriate for use in this study as it organizes factors leading to service use, thus matching the study's structure of examining factors predicting NF admission and mobilization of community supports. (Figure 1 in the Technical Report depicts this model.) Within the Andersen framework, enabling factors are thought to be the most mutable, and, therefore, the most amenable to policy intervention.

### ***Interpretation of the discriminant analysis results***

Findings suggested that the *predisposing* variables of urban residential status, and whether the customer lived with someone, and the *enabling* variable of anticipation of Medicaid as a payment source for services were the major factors that distinguish diverted and non-diverted groups and, thus, the factors that were most strongly linked to NF admission. The key *need* variables identified were medication management, telephone use, memory/recall, dressing, eating, and money management.

The results of the cross-tabulations were later confirmed in the Discriminant Analysis. For example, non-diverted customers are more likely than diverted customers to live in the largest urban communities (38.0% vs. 30.9%), less likely to live alone (42.7% vs. 49.8%) (Table 1 in the Technical Report), more likely than their diverted counterparts to indicate Medicaid as a potential source of payment for support services (23.2% vs. 17.7%; Tables 1 & 2 in the Technical Report), and more likely to be functionally impaired (Tables 3, 4 & 5 in the Technical Report).

## **C) Discussion**

Using the Andersen Model nomenclature of predisposing, enabling, and need factors, the results from this analysis of diverted and non-diverted customers have been compared to other research findings cited in the literature review.

### ***Findings Related to Predisposing Factors***

Age, gender, urban/rural and whether the older adult lived alone, represent the predisposing variables selected for analysis.<sup>3</sup> Inspection of the crosstabs (Table 1 in the Technical Report) shows that diverted and non-diverted customers were similarly distributed in terms of age, gender, and with only modest differences between urban and rural residence. A slightly larger percentage of diverted customers compared to non-diverted customers lived alone at the time of the CARE Assessment. These items were also entered into the discriminant analysis model. Urban/rural residential status and living alone or with someone were the only variables that contributed to the model. While there are not many studies noting differences in urban and rural status, Penrod (2001) found that older adults in rural areas are older upon NF admission. One study reported that being widowed or never married was a risk factor for NF admission (Cohen, Tell, & Wallack, 1986) and another study (Greene & Ondrich, 1990) reported that living alone was a risk factor for NF admission. Diverted customers are more likely to live alone in our analysis.

Age is a predisposing risk factor that has been found to be statistically significant in NF admission in numerous research studies (Black et al., 1999; Cohen, Tell, & Wallack, 1986; Greene & Ondrich, 1990; Jette, Branch, Sleeper Feldman, & Sullivan, 1992; Liu, Coughlin, & McBride, 1991; Weissert & Cready, 1989). Jette et al. (1992) found that the two strongest risk factors for placement in an NF were age and income interactions.<sup>4</sup> Yet, age did not have much explanatory power in this study. The data (Table 1 in the Technical Report) illustrate that diverted and non-diverted customers were very similarly distributed on age. The entire cohort is aged in Kansas. As is well known, as the population ages, it becomes more heavily female. At the same time, among the survivors, social as well as health-related gender differences tend to diminish with age.

### ***Findings Related to Enabling Factors***

The enabling factors studied in this project were caregiver support availability,<sup>5</sup> CARE Assessment location, whether the customer anticipated self-pay, Medicare or Medicaid as a potential source of payment for support services, and who was responsible for legal/financial affairs. The data indicate that diverted and non-diverted customers were similarly distributed in regard to caregiver support availability, and whether the customer anticipated out-of-pocket payment for support services and Medicare as the potential payment source for support services (Table 2 in the Technical Report). Also, diverted and non-diverted customers were similarly distributed in regard to whether the CARE Assessment was completed at home, in the NF or in the hospital (Table 2 in the Technical Report). Finally, diverted customers were more likely to maintain control of their own legal and financial affairs, whereas the non-diverted customer's

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<sup>3</sup> Ethnicity was not analyzed because the vast majority of the sample was Caucasian. See Greene & Ondrich (1990) for a review of the effects of ethnicity in regard to risk for NF placement.

<sup>4</sup> It is important to note that income data are not collected on the CARE Assessment, thus preventing us from analyzing the impact of income on diversion status.

<sup>5</sup> It is important to note that data on marital status is not a data item collected on the CARE Assessment, thus preventing us from analyzing the impact of marital status.



families were more likely to have control of legal and financial affairs (Table 2 in the Technical Report).

Whether customers anticipated Medicaid as a potential payment source for support services contributed to the discriminant analysis model. This suggests that Medicaid increases the likelihood of NF admission. In addition, Penrod (2001) found more NF beds and fewer home health options were available to the rural older adults compared to their urban counterparts. As noted in the introduction, the Diversion Study did not include data about NF bed and home health service availability. However, the Penrod findings are important because the sample was taken from Nebraska MDS data, and the sample would likely be comparable to the Kansas older adult population. Caregiver problems, such as living separately from the older adult, having time conflicts due to employment, and caregiver stress, which could be considered a proxy for availability of support, were statistically significant in one study (Tsuji et al, 1995). Availability of support was analyzed descriptively and entered the discriminant analysis as an enabling variable. There were no discernable differences between diverted and non-diverted customers in regard to level of support. Support availability did not add to the discriminant function over and above the contribution of other variables.

### ***Findings Related to Need Factors***

The need factors that were analyzed included ADLs, IADLs, and items that comprise the problems and risks component of the LTC score. As a whole, diverted customers at the time of their CARE Assessment required less help on ADLs while non-diverted customers needed more physical assistance and were more often unable to perform ADLs (Tables 3 & 4 in the Technical Report). A similar pattern was observed between diversion status and IADL functioning. Medication management, telephone use, memory/recall, dressing, eating, and money management were the only need factors that contributed to the discriminant analysis model, suggesting that they play an important role in differentiating diverted and non-diverted customers.

These results are consistent with findings in the literature that point to impairment in mobility and physical and cognitive deficits as important factors associated with placement in an NF (Engle & Graney, 1993; Hansen, Mahoney, & Palta, 1999; Lieu et al., 1991; Weissert & Cready, 1989). Cognitive status has been cited as an important need factor for NF placement (Coughlin et al., 1990; Greene & Ondrich, 1990; Hansen, Mahoney, & Palta, 1999; Liu et al., 1991; Osterweil, Martin, & Syndulko, 1995; Tsuji et al., 1995; Weissert & Cready, 1989) and a key indicator of length of stay once the customer has been institutionalized (Hansen, Mahoney, & Palta, 1999; Liu et al., 1991). Penrod (2001) compared urban and rural individuals admitted to NF, and found older adults in rural areas less impaired than their urban counterparts. Penrod's findings also confirmed results from the present study showing that diverted customers living in rural areas admitted to NF have lower LTC scores than non-diverted urban customers admitted to NF. Refer to the Technical Report for additional discussion of this finding.

## **D) Summary**

The overall description of the diverted and non-diverted customers indicates that the majority of older adults applying for NF admission were women and the average age was 83 years. Approximately 60% of the CARE Assessment customers experienced a health crisis that precipitated the NF application. Many of the CARE Assessment customers who were diverted had a short NF stay prior to the 30 Day CARE Follow-Up, which reflects how older adults are using NF care for rehabilitation. The discriminant analysis identified the significant predisposing, enabling and need factors that helped to explain the dimensions or risk factors on which diverted and non-diverted customers differed significantly from one another. Older adults living in the largest urban communities, who were not living alone, who identified Medicaid as a possible source of payment for support services, and who needed assistance with medication and money management, dressing, eating, and telephone use as well as having problems with memory/recall were more likely to enter the NF.

The average LTC Threshold Scores of diverted and non-diverted customers were slightly different, and the difference was statistically significant. The implication is that the LTC score alone does not indicate a need for NF admission. The analysis of the LTC score suggests that some non-diverted customers with low LTC scores could benefit from targeted services and increased use of AL to cost effectively prevent or delay NF admission.

The next section of the Final Report focuses on identifying factors that contribute to the community tenure of diverted customers over an 18-month period. In addition, the cost analysis of the services received by diverted customers over the 18-month period is explained.

### Part III: Community Tenure of Diverted Customers

The section on community tenure reports findings on the entire cohort (all four waves) of diverted customers tracked over an 18-month period. This analysis addresses a major interest in this study: the community tenure and service status of diverted customers following their diversion. This component of the study tracked a total of 599<sup>6</sup> customers for 18 months. The Diversion Study is unique because the diverted customers were at the NF door when they requested assistance, then the diverted customers were tracked for 18 months, and actual service costs were used in the analysis.

#### A) Outcomes During 18 Months of Tracking Diverted Customers

The community tenure of diverted customers was examined based on seven policy-related questions.

- How long do diverted customers remain in the community?
- What services do diverted customers use?
- What factors contribute to community tenure?
- What are the utilization patterns for State Publicly Funded Services?
- What are the actual costs of these services for the state?
- What are the actual cost savings for the state for SPFS received by diverted customers?
- How do diverted customers perceive services in relation to quality of life?

The length of community tenure and the status of diverted customers when the tracking ended at 18 months are reported below in Table 1. Those findings are summarized here.

- **When the tracking of diverted customers ended 18 months after their CARE Assessment, 289 (48.2%) diverted customers were still in the community.**
- **Although diverted by the 30<sup>th</sup> day after the CARE Assessment, 366 diverted customers (61.1%) had a short NF stay after the CARE Assessment.**
- **There were 171 (28.5 %) diverted customers who became permanent NF residents or died subsequent to permanent NF admission.**
- **There were 139 (23.2%) diverted customers who died while still residing in the community.**

These findings illustrate that almost half of the diverted customers were able to maintain community tenure for 18 months, and 139 (23.2%) were able to be in the community when they died. Despite the fact that 366 (61%) of the diverted customers had a short NF stay after the CARE Assessment, they had returned to the community by the 30-day CARE Assessment Follow-Up. Only 171 (28.5%) of the diverted customers had been permanently admitted to the NF by the 18<sup>th</sup> month of follow-up.

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<sup>6</sup> There were 600 cases of diverted customers; however there were only 599 unduplicated diverted customers.

➤ **How long do diverted customers remain in the community?**

Nearly half (48.2%) of the diverted customers remained in the community for at least 18 months post-CARE Assessment. Furthermore, over twice as many diverted NF applicants (289) were still living in the community a year and a half after their assessment than were permanently living in NF (124). OALTC identified the community tenure of diverted customers at 3-month intervals after the CARE Assessment to determine who was still in the community, who had been admitted to NF, and who had died while residing in the community. Because client tracking ended, it is not known how much longer the 289 customers still diverted and residing in the community at the end of the study will remain there. The results for length of diversion at the end of 18 months of follow-up are presented in Table 1 below and in Chart 2.

**Table 1**  
**Community Tenure Status of Diverted**  
**Customers at Three-Month Intervals**  
**N = 599**

Time Interval after the CARE Assessment	In the community	Permanent NF Resident	Died while Permanent NF Resident	Died while living in Community
90 days (3 months)	499 (83.3%)	80 (13.4%)	0 (0%)	20 (3.3%)
180 days (6 months)	427 (71.3%)	106 (17.7%)	2 (0.3%)	64 (10.7%)
270 days (9 months)	382 (63.8%)	114 (19.0%)	14 (2.3%)	89 (14.9%)
360 days (12 months)	348 (58.1%)	120 (20.0%)	25 (4.2%)	106 (17.7%)
450 days (15 months)	317 (52.9%)	118 (19.7%)	39 (6.5%)	125 (20.9%)
540 days (18 months)	289 (48.2%)	124 (20.7%)	47 (7.8%)	139 (23.2%)

**Table 1 illustrates the fact that almost one-half of the diverted customers were still in the community 540 days or 18 months after their CARE Assessment.** This information is also graphically displayed in Chart 2 below.

In addition to the 21% of diverted customers residing in the NF at the 18<sup>th</sup> month, 31% of the originally diverted group had died. Of the diverted customers who died, 23% died while living in the community and 8% died while permanently residing in the NF. Within nine months of the CARE Assessment, the proportion of NF residents in the study plateaued at approximately 20%.

New admissions were being balanced by deaths of previously diverted customers who had been admitted and subsequently died in NF (Chart 2). In addition, as follow-up has progressed, an increasing number of diverted customers have died in the community. The rate of death of diverted customers residing in the community increased incrementally by approximately 3 percentage points every three months from the 9<sup>th</sup> month to the 18<sup>th</sup> month.

**Chart 2**  
**Community Tenure Status of Diverted Customers**  
**at Discrete Intervals After the CARE Assessment**  
**N = 599**

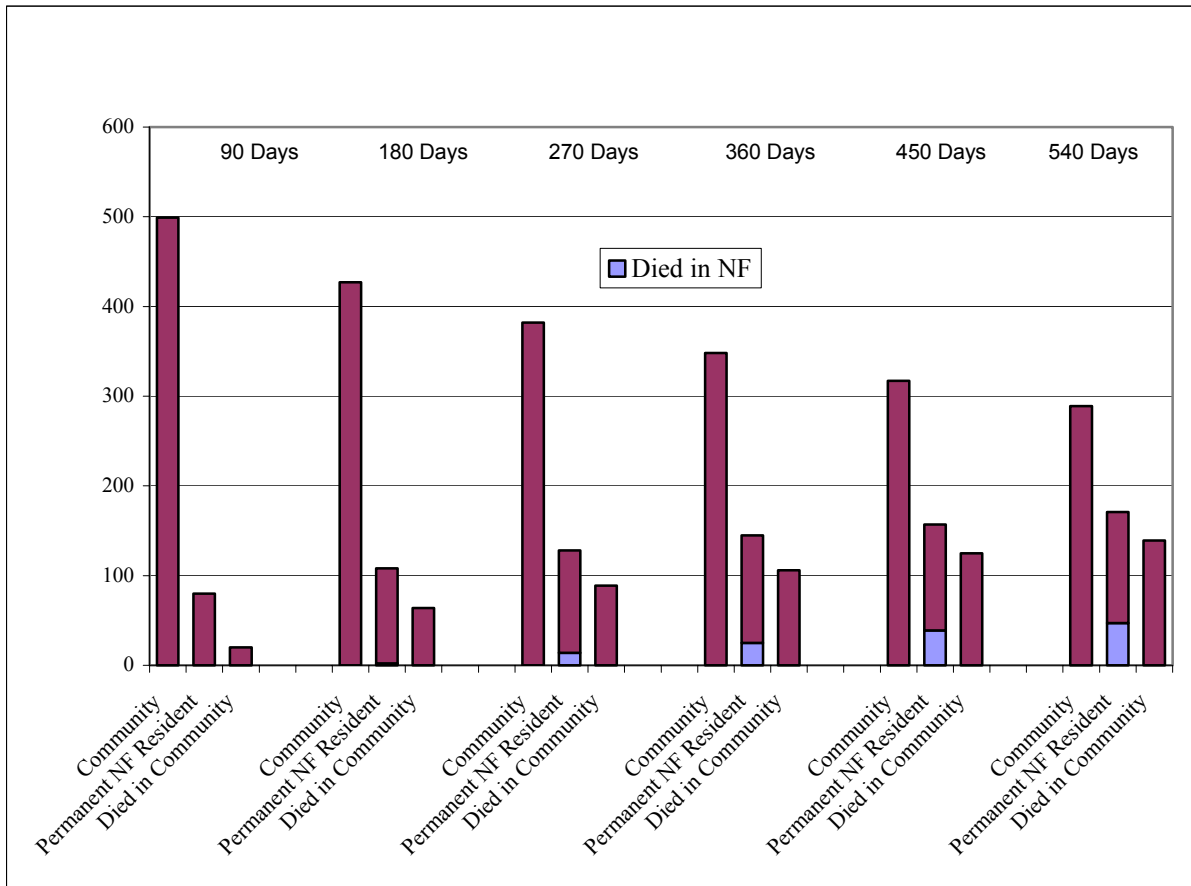


Chart 2 illustrates that community tenure changes the most in the first 180 days after the CARE Assessment. The decrease in community tenure slows from the 9<sup>th</sup> month to the 18<sup>th</sup> month. The most frequent reason for diverted customers to lose community tenure was due to death. As discussed above, the net number of diverted customers who are current permanent NF residents does not change much over time when those who died in the NF are factored out.

These findings are consistent with other research findings regarding death following NF admission. NF admission and death are both correlated with functional impairment and age (Miller and Weissert, 2000). In the Diversion Study, those diverted customers who died were three times more likely to die in their own home than an NF.

The LTC Threshold Scores calculated at the time of the CARE Assessment were examined for diverted customers who maintained community tenure. The baseline mean LTC Threshold Score for all diverted customers (N = 599) at the time of the CARE Assessment was 65.80. Table 2 displays the baseline mean LTC Threshold Score at the time of the CARE Assessment for the diverted customers still in the community at 90-day intervals.

**Table 2**  
**Baseline Mean LTC Threshold Score\* at the Time of the CARE Assessment**  
**for the Diverted Customers Still in the Community at 90-day Intervals**

Baseline Mean LTC Threshold Score	Time Interval	Number of Diverted Customers in the Community
65.80	CARE Assessment	599
64.56	90 days	496
64.65	180 days	424
63.99	270 days	379
63.59	360 days	345
62.99	450 days	314
63.24	540 days	286

\* Measured at the time of the CARE Assessment

The data for diverted customers in Table 2 show that the mean LTC Threshold Score at the time of the CARE Assessment for those who had the longest community tenure was only slightly lower than that of those with the shortest community tenure. This analysis illustrates that diverted customers with relatively high LTC Threshold Scores are able to maintain community tenure. It is likely that the combination of formal and informal services contribute to their successful community tenure.

➤ **What services do diverted customers use?**

OALTC also analyzed and tracked the services being received by diverted customers at 3-month intervals during their community tenure. The information is displayed for Medicaid-HCBS/FE and Targeted Case Management (TCM), <sup>7</sup> and state general fund services (SGF), which would include Senior Care Act and Older Americans Act services for example, and Other than SPFS, which would include Medicare and/or private pay services. At this time OALTC does not have specific information about the Medicare services and private pay services received by diverted customers. Information about Medicare services could possibly help to distinguish those customers from private pay customers. The funding sources of Medicaid-HCBS/FE or SGF and/or OAA services and non-SPFS funded in-home community based services are presented in Table 3.

<sup>7</sup> In this report, Case Management funded as a Medicaid Administrative cost is included in TCM.

**Table 3**  
**Community Tenure Status of Diverted Customers at**  
**Three Month Intervals and by Funding Source**  
**N = 599**

Time Interval After the CARE Assessment	Medicaid-HCBS, TCM	SGF and/or OAA	Other than SPFS	Total
90 days (3 months)	84 (16.8%)	73 (15%)	342 (68.5%)	499
180 days (6 months)	70 (16.4%)	46 (10.8%)	311 (72.8%)	427
270 days (9 months)	68 (17.8%)	41 (10.7%)	273 (71.5%)	382
360 days (12 months)	41 (11.8%)	42 (12.1%)	265 (76.1%)	348
450 days (15 months)	38 (12.0%)	37 (11.7%)	242 (76.3%)	317
540 days (18 months)	33 (11.4%)	37 (12.8%)	219 (75.8%)	289

Table 3 illustrates how Medicaid-HCBS/FE or SGF and/or OAA services were received by 157 (31.8%) diverted customers 3 months after their CARE Assessment. Out of the diverted customers still in the community 18 months after the CARE Assessment, 70 (24.2%) were receiving Medicaid-HCBS/FE and SGF and/or OAA services. At any one time, no more than 10 **service customers** received Medicaid-HCBS/FE and SGF and/or OAA services (if they received both Medicaid-HCBS/FE and SGF and/or OAA they were categorized as Medicaid-HCBS/FE customers). Table 3 illustrates funding sources for services received by diverted customers remaining in the community at each discrete point in time. Service customers could begin and discontinue Medicaid-HCBS/FE, SGF and/or OAA services at any time after the CARE Assessment. The table also illustrates how the number of Medicaid-HCBS/FE customers falls slightly below the number of SGF and/or OAA customers by the 12<sup>th</sup> month.

Chart 3 graphically illustrates the funding sources of services received by diverted customers in three-month intervals.

**Chart 3**  
**Community Tenure Status of Diverted Customers at**  
**Three Month Intervals and by Funding Source**  
**N = 599**

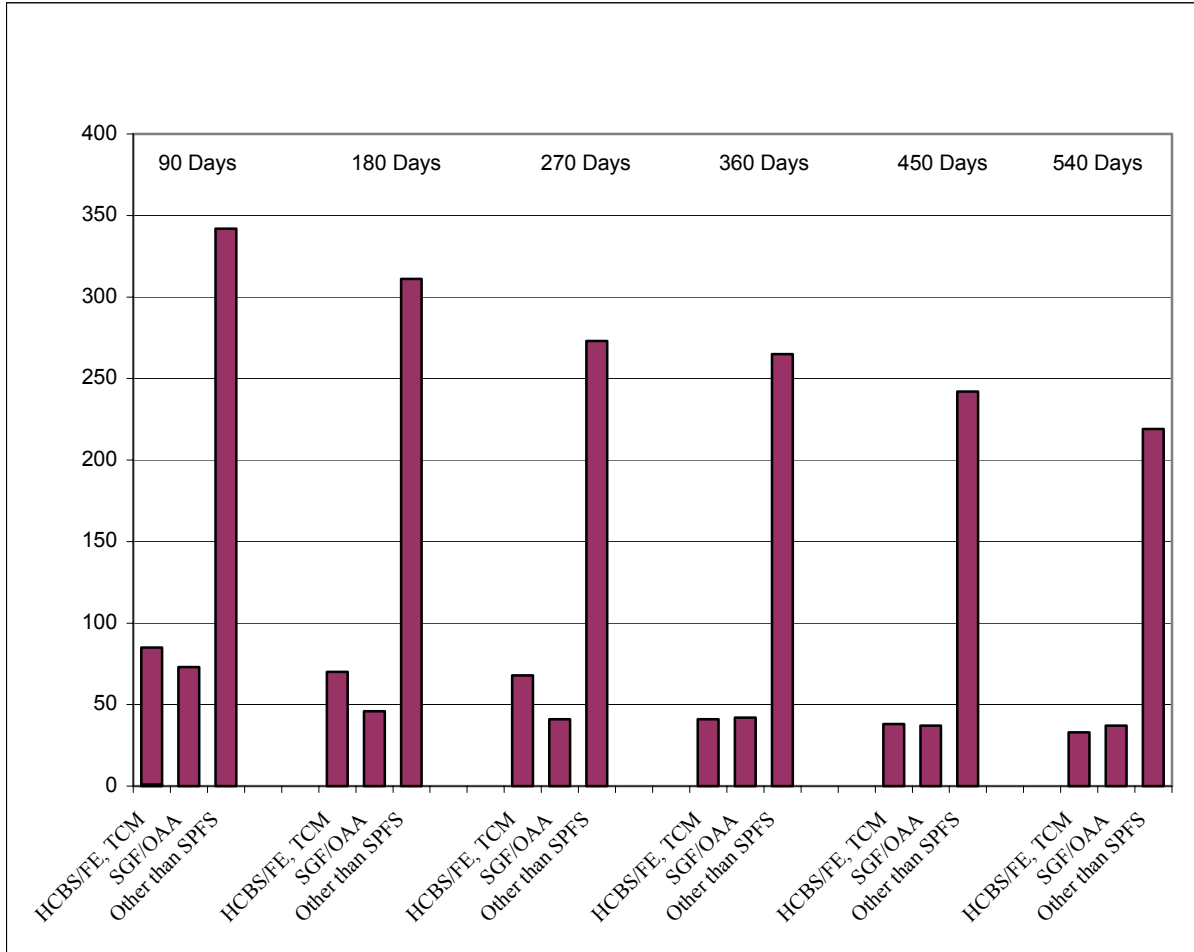


Chart 3 illustrates how the number of diverted customers receiving Medicaid-HCBS/FE and SGF and/or OAA services decreased from 157 to 70 over 18 months, but the percentage rate only declined from 31.8% to 24.2% in the same time period.

The preceding Table 3 and Chart 3 do not show whether the diverted customers continued to receive services at the 90-day intervals from the same funding source as the 30<sup>th</sup> day. Therefore an additional analysis was conducted to examine service utilization from this perspective. Table 4 displays the number of customers who received HCBS/FE or SGF and/or OAA services at the 30<sup>th</sup> day who were still in the community with or without these services at 90-day intervals.



**Table 4**  
**Community Tenure and SPFS Utilization of Diverted Customers at 90 Day Intervals Based on Service Funding Source at The 30<sup>th</sup> Day After the CARE Assessment and N = 102**

<b>Time Interval After the CARE Assessment</b>	<b>Number receiving HCBS/FE</b>	<b>Number receiving SGF</b>	<b>Number In the Community Without HCBS or SGF Services</b>
30 day (1 month)	73	29	NA
90 days (3 months)	60	16	9
180 days (6 months)	49	8	14
270 days (9 months)	38	7	14
360 days (12 months)	31	4	14
450 days (15 months)	23	0	18
540 days (18 months)	25	0	15

**Of the 102 who were receiving SPFS at the 30<sup>th</sup> day after the CARE Assessment, 40 (39.2%) were still in the community at the 540<sup>th</sup> day.** In addition, 25 (34.2%) of the 73 who were receiving Medicaid-HCBS/FE services at the 30th day were still in the community receiving these services at the 540<sup>th</sup> day.

➤ **How do diverted customers perceive services in relation to quality of life?**

Interviews with diverted customers (n=69) were conducted to identify in their own words how services contribute to their quality of life. Notably, 92% of respondents said that they were better off because of their in-home services. This segment specifically addresses several dimensions that constitute customers’ quality of life to which public-funded services directly contribute. Safety and general well being are two of the most important aspects of diverted customer’s perception of service related quality of life.

***Safety***

The majority of the respondents confirmed that they were safer at home because of the services they received. For customers with Lifeline, being able to secure immediate help if needed was the most frequently given response. Several customers were unable to use the telephone and relied on their personal emergency response device as their sole means of summoning help. Personal care attendant, home delivered meals, and homemaking services provided assistance for customers to safely complete ADLs and IADLs that were necessary but otherwise difficult or

impossible without help. Those who utilized attendant care services saw them as vital to being able to attend to their hygiene needs without falling or straining physically.

Many customers used homemaking service for help with cleaning and shopping. Maintaining a clean home was seen as important in preventing accidents like falls due to clutter. Customers also felt that this service helped reduce the chance of injury for someone trying to do housework when they were not physically able. Shopping was also important because many of the service recipients were either homebound or required assistance to leave home. Wellness monitoring gave diverted customers the feeling of being cared for by a professional who could detect problems that family members could not. Receiving a prepared meal reduced a risk of falls in the kitchen.

### ***General Well Being***

In addition to decreasing the safety risk in the home environment, publicly funded services contributed to the customers' general well being. Customers and caregivers believed that these services allowed them to stay at home where they are most content. Many customers said that simply being able to stay at home because of their community-based service, gave them a feeling of security. They also felt that they were able to benefit from better nutrition and live in cleaner environments. Customers who lived in an assisted living setting and their caregivers preferred the current care environment as they felt that the assisted living facility provided more privacy, autonomy, and individual attention to residents. Frequently, customers reported that their home care providers took a personal interest in them thus adding a needed social element to the formal services. One customer commented about their care attendant, "the personal touch just like a family provides." Additional findings about service related quality of life are reported in the Technical Report.

### **B) Early Diversion and Informal Support**

The low percent of diverted customers receiving Medicaid-HCBS/FE and SGF and/or OAA community based services noted previously in Table 3 prompted additional analysis during FY2002. Two additional analyses were conducted in FY 2002 to examine incidence of "early diversion" and to gather more information about informal support received by diverted customers.

#### *Early Diversion*

In year two of the project, an additional analysis of the non-diverted customers was completed. AAA staff reported that some CARE Assessment customers had been receiving services prior to their CARE Assessment. These individuals were referred to as "early diversions" because service effectively kept them in the community up to the point of the CARE Assessment. **In an analysis of non-diverted customers, OALTC found that 514 (25%) of the non-diverted customers were in fact early diversions. In addition, of the 415 permanent Medicaid NF residents, 178 (42.9%) received SPFS in the six months prior to their NF admission.** The use of Medicaid-HCBS/FE and SGF and/or OAA before NF admission appears to have an impact on length of stay. **For example, 48 (64.9%) of the short-term Medicaid NF residents**

**used SPFS compared to 178 (42.9%) of permanent Medicaid NF residents.** This suggests that prior knowledge and involvement with SPFS facilitates coordinating discharge and re-entry in the community. Refer to the Technical Report for additional details.

OALTC also analyzed the use of SPFS by Planning and Service Areas (PSAs) for non-diverted individuals who entered an NF and used Medicaid as a payment source for their NF stay (n=415). Analyses were conducted to examine differences and similarities between PSAs according to the ‘early diversion’ rate among these 415 permanent Medicaid NF residents. The early diversion data by PSA are profiled in Table 5 below.

**Table 5  
State Publicly Funded Service Use by Permanent Medicaid  
NF Residents Prior to Admission (Early Diversions)  
(n = 178)**

	Planning and Service Area (PSA)										
	1	2	3	4	5	6	7	8	9	10	11
<b>Number who received SPFS</b>	9	29	11	15	27	15	10	26	7	22	7
<b>Number who Entered NF</b>	30	79	24	32	41	36	16	60	17	52	28
<b>Early Diversion Rate (%)</b>	30.0	36.7	45.8	46.9	65.9	41.7	62.5	43.3	41.2	42.3	25.0

- PSA 7 (East Central Kansas AAA-Ottawa) and PSA 5 (Southeast Kansas AAA-Chanute) had the highest early diversion rate of permanent Medicaid NF residents (67.50% and 65.85%), respectively. These PSAs are distinguished by their rurality.
- PSA 11 (Johnson County AAA-Olathe), PSA 1 (Wyandotte-Leavenworth AAA-Kansas City) and PSA 2 (Central Plains AAA-Wichita) had the lowest early diversion rates of permanent Medicaid NF residents, ranging from 25% to 36.71%. These PSAs are distinguished by the presence of large metropolitan populations.
- The early diversion rate for the remaining six PSAs ranged between 41.18% and 46.88%.

The differences in the early diversion rate by PSA may be partially explained by the urban and rural characteristics of the PSA. In general, the more rural PSAs had higher early diversion rates, which may suggest that older adults have more formal and informal support prior to permanent NF admission.

***Use of Informal Support***

Also in year two, an analysis of diverted customers in August 2000 was conducted to identify the sources, frequency, and types of informal support older adults received. There were 86 diverted customers who reported service information when the AAA completed the 30-Day CARE Follow-Up.

Out of the 86 August 2000 diverted customers, 32 (37%) of them received some type of Medicaid-HCBS/FE, Senior Care Act, Income Eligible or Older Americans Act services (SPFS). The vast majority of customers receiving SPFS were also receiving some other type of service. For instance, diverted customers used Medicare and private pay services in addition to SPFS. In addition, over 50% of the diverted customers received informal services in combination with formal services. Refer to the Technical Report for additional details. These results were confirmed by the interviews conducted with diverted customers.

### **Publicly funded programs are indispensable**

In the face-to-face interviews, respondents indicated that publicly funded services were indispensable for them to stay in the community. Customers would experience a real loss if funding were not available for the services. Fifty nine percent of the respondents in the interviews stated that they could not stay at home without services. The most frequent option mentioned by the respondents as an alternative care setting was a nursing facility.

Seventy percent of the qualitative study participants received multiple publicly funded services. Only a few seemed to think that they could turn to hired services in the absence of the current publicly funded programs. For most of the services they were receiving, interviewees either did not know how or did not think that the service could be provided without SPFS.

### **The relationship of formal and informal services**

Formal services are frequently used to complement informal supports. For example, the customers did not depend on home delivered meals as the only source of their nutritional support. Their caregivers usually did grocery shopping and meal preparation for them. The caregivers also did tasks related to homemaking and personal care. Some caregivers reported personal care attendant services provided a brief respite to rest or run errands. All combined, various types of assistance from the formal and informal network supplement each other. Vital tasks that ensure the safety of the home environment and complement older adults' capacity to perform ADLs and IADLs are sustained by a joint effort of informal supports and publicly funded services.

## **C) Factors that Contribute to Community Tenure**

This study also examined predictors of NF admission, especially for Medicaid-HCBS/FE customers. This type of information is useful to target services to customers who are at greatest risk of NF admission. An analysis of variables was completed to answer these questions. A Cox Proportional Hazards Model Analysis was used for this purpose.

➤ **What factors contribute to community tenure?**

OALTC analyzed data on diverted customers to identify what factors contributed the most to community tenure. Two quantitative methods, the Cox Proportional Hazards Model Analysis and Logistic Regression Analysis, were used to analyze this question. In addition, data from interviews with diverted customers provide further explanations of the challenges experienced and resources utilized by older adults and their families to remain in the community after the CARE Assessment.

*Results of the analysis explaining community tenure among diverted customers*

In order to determine which factors contributed to the length of time diverted customers were able to remain in the community, OALTC conducted two analyses. In both, length of community tenure was measured in the number of days diverted customers lived in the community until either they died or were permanently admitted to a NF. The factors examined for their contribution to community tenure came from several sources. Refer to Appendix B for details. Most factors were measured at the time of the CARE Assessment: age in years, degree of rurality (of county of residence), gender, LTC threshold score<sup>8</sup>, support availability, Medicaid as a potential payment source for support services, the location where the CARE Assessment was conducted (community, hospital or NF), and whether the CARE customer lived alone. An additional factor measured at the time of the 30-Day CARE Follow-Up was whether the customer was in residential care or assisted living (AL) at the time of the follow-up. In addition, hours of Medicaid-HCBS/FE and TCM, and SGF and/or OAA service used during the 18 months after the CARE Assessment were included in the analyses. Only diverted customers (N=599) were included in these analyses.

In the first analysis, a hazards model, a type of regression analysis, was used to analyze the probability that diverted customers would permanently enter an NF at any time after the 30-Day CARE Follow-Up through 18 months later. The hazards model was appropriate for this analysis because it allowed for several risk factors to be included when analyzing time to permanent NF admission (Gaugler et al., 2000). The results of the hazards model show the odds ratio or “relative risk” associated with each factor of losing community tenure (e.g. entering the NF) at any time period.

Logistic regression was the second analysis conducted. Diverted customers were divided into two groups: those who were able to stay in the community for more than nine months (“established community tenure”), and those who had a permanent NF placement in less than nine months (“interim community tenure”). Diverted customers who never had a permanent NF placement, but who died before the end of a year were considered to be part of the established community tenure group. These diverted customers are considered to have “aged in place” in the community. The results of the logistic regression are also presented in terms of odds ratios.

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<sup>8</sup> Summed ADLs and IADLs were originally included in the analysis and showed results consistent with the overall LTC threshold score. Therefore, the composite LTC threshold score was included in the final analyses.

***Factors that contribute to community tenure***

The results in Table 6 show the risk of **losing** community tenure and permanently going into NF were associated with a series of explanatory factors. The *p*-value associated with each factor indicates the extent to which the result could be due to chance as opposed to any true finding in the data. Ideally, *p*-values should be low. A *p*-value of less than .05 indicates that the statistical relationship in question could have occurred less than 5 times out of 100 by chance alone. A *p*-value as high as .10 may be considered by researchers to indicate statistical significance. Table 6 below includes the odds ratio and significance level of each variable. Refer to Tables 1 and 2 in the Technical Report for a demographic description of the sample of diverted customers used in these following analyses.

**Table 6**  
**Proportional Hazards Model Results: Assessing**  
**Risk Factors for Permanent NF Placement**  
**N = 550<sup>a</sup>**

Variables Measured	Odds Ratio <sup>b</sup>	<i>p</i> -value
Age in years	1.024	0.0834**
Degree of rurality (9 = most rural)	0.977	0.7753
Gender (1 = male)	1.004	0.9083
LTC score	0.989	0.0657**
Support availability (0= none, 3 = full time)	0.842	0.0122***
Medicaid as potential payment source of support services	2.112	0.0007****
CARE Assessment location hospital	0.551	0.0046****
CARE Assessment location NF	0.508	0.0586**
Customer lives alone	1.254	0.2708
Customer lives in assisted living	1.571	0.0456***
Hours of Medicaid-HCBS/FE and TCM, and SGF and/or OAA service use	0.999	0.7493

<sup>a</sup> The N is less than 599 because of missing values.

<sup>b</sup> Effect of variable on probability of going into NF permanently. An odds ratios of > 1 indicates increased risk, <1 indicates reduced risk.

\*\* Statistically significant at *p* < 0.10

\*\*\* Statistically significant at *p* < 0.05

\*\*\*\* Statistically significant at *p* < 0.01

Table 6 displays the results of the hazards model analysis. Additional discussion of the results in relation to the literature is provided in the discussion section that follows. In the analysis, an odds ratio greater than 1 indicates the variable increased the chance that the diverted customer would enter an NF for a permanent stay. An odds ratio less than 1 indicates the diverted customer is less likely to enter an NF with the variable present. Age was statistically significant. For every year older the diverted customer was at the time of the CARE Assessment, their odds (chance) of permanently entering the NF were 2.4% greater (higher). Degree of rurality and gender were not significant in this analysis. The results in Table 6 show that diverted customers with higher LTC scores were actually less likely to permanently enter an NF.

Support availability was statistically significant. The more support available (as coded on the CARE assessment), the **less likely** the customer was to enter an NF permanently. For example, part time intermittent support as opposed to no support reduced the risk of entering the NF permanently by about 16 percent. Medicaid as a potential payment source for support services was highly significant. This variable is a proxy for poverty. Low-income older adults in the sample of diverted customers were more than twice as likely to have a permanent NF admission.

The two variables, CARE Assessments conducted in the hospital and the NF, were statistically significant.<sup>9</sup> These variables were shown to reduce the risk of permanent NF placement. It is hypothesized that diverted customers assessed in these settings were experiencing an acute disabling episode from which they recovered after a short rehabilitation stay and/or acquisition of appropriate services that lead to maintenance of community tenure. Living alone was not statistically significant in this analysis. Diverted customers who live in an assisted living facility were more likely to permanently enter the NF and the results were statistically significant. Hours of Medicaid-HCBS/FE and TCM, and SGF and/or OAA service use were not significant.

A second hazards model analysis was conducted that limited the analysis to only those diverted customers who were known to be low-income, (e.g. indicated Medicaid as a potential source of payment for support services). These results are shown in Table 7 below.

**Table 7**  
**Proportional Hazards Model Results for Low Income #**  
**Diverted Customers: Assessing Risk Factors for**  
**Entering an NF Permanently for Diverted Customers**  
**Who Indicated Medicaid as a Potential Payment Source**  
**N = 123**

Variables Measured	Odds Ratio*	<i>p</i> -value
Age in years	1.050	0.0339**
Degree of rurality (9 = most rural)	0.644	0.0089***
Gender (1 = male)	0.990	0.8699
LTC score	1.001	0.9590
Support availability (0= none, 3 = full time)	0.909	0.4212
CARE Assessment location hospital	0.279	0.0007***
CARE Assessment location NF	0.417	0.2489
Customer lives alone	2.390	0.0182**
Customer lives in assisted living	1.613	0.3429
Hours of Medicaid-HCBS/FE and TCM, and SGF and/or OAA service use	0.998	0.6009

# Customers who indicated Medicaid as a potential source of payment for support services.

\* Effect of variable on probability of permanently going into NF. An Odds Ratios of > 1 indicates increased risk, <1 indicates reduced risk.

\*\* Statistically significant at  $p < 0.05$

\*\*\* Statistically significant at  $p < 0.01$

<sup>9</sup> CARE Assessments are conducted by hospital CARE Assessors or AAA Care Assessors in an NF and the community.

As Table 7 shows, many of the results are similar to those found for the entire sample of diverted customers. However, there were a few notable exceptions. First, the degree of rurality became highly significant with low-income customers. The finding indicates that the more rural the diverted customer, the **less** likely the diverted customer was to permanently enter the NF. This finding suggests that the low-income, urban dwelling diverted customers are at greater risk of permanent NF admission than their low-income, rural counterparts. Another difference is that living alone became significant in this analysis. Low-income diverted customers who lived alone were more than twice as likely to permanently enter an NF than low-income diverted customers who lived with someone. Low-income diverted customers who live alone in urban areas are at an increased risk of a permanent NF admission. Another notable finding is that while the LTC threshold score was significant in the first analysis that included all diverted customers, it does not show up as significant for the low-income diverted customers. This finding indicates that the risk factors for permanent NF admission for low-income older adults have less to do with functional or cognitive impairments compared to other factors. These risk factors can likely be addressed through interventions.

The final set of analyses used the same variables as the hazards model. However, for logistic regression, the diverted customers were divided into two groups based on the length of time they were in the community. The two groups were: “interim community tenure” (had a permanent NF admission in less than nine months) and “established community tenure” (remained in the community for more than nine months). Logistic regression models can be evaluated in terms of how well the entire model can explain variation in the outcome--in this case, length of community tenure. The model presented in Table 8 was able to correctly classify 70% of all diverted customers. This means that the factors included in this model, taken together, can predict correctly the community tenure of 70 out of every 100 diverted individuals. In these analyses, fewer of the individual explanatory variables achieved statistical significance. However, the direction of influence tends to be the same as in the hazards models.



**Table 8**  
**Logistic Regression Analysis Results:**  
**Explaining Length of Community Tenure**  
**N = 491<sup>a</sup>**

Variables Measured	Odds Ratio <sup>b</sup>	<i>p</i> -value
Age in years	0.988	0.4825
Degree of rurality (9 = most rural)	1.010	0.9325
Gender (1 = male)	0.939	0.1993
LTC score	1.010	0.2260
Support availability (0= none, 3 = full time)	1.141	0.1720
Medicaid as potential payment source of support services	0.372	0.0013**
CARE Assessment location hospital	2.770	0.0005**
CARE Assessment location NF	3.324	0.0205*
Customer lives alone	0.814	0.4660
Customer lives in assisted living	0.718	0.3286
Hours of Medicaid-HCBS/FE and TCM, and SGF and/or OAA service use	1.006	0.3004

<sup>a</sup> the N is less than 599 because of missing values.

<sup>b</sup> Effect of variable on probability of long-term community tenure. Ratios > 1 indicate that the variable increases the probability that the diverted customer is a long-term community dweller. Ratios <1 indicate that the variable reduces the probability that the diverted customer is a long term community dweller.

\* Statistically significant at  $p < 0.05$

\*\* Statistically significant at  $p < 0.01$

In the regression analysis, an odds ratio less than 1 indicates the diverted customer is less likely to have “established community tenure”. An odds ratio greater than 1 indicates the variable increased the chance that the diverted customer would have “established community tenure”. Poverty, as indicated by the Medicaid variable, reduces the likelihood that the diverted customer stays in the community. Again, it was highly significant. CARE Assessments conducted in the hospital or in a NF were statistically significant. Being assessed in the hospital or NF reduces the risk of a permanent NF placement. In this analysis, each hour of service use (measured as average monthly hours) increases the likelihood that the diverted customer is a long-term community dweller by 0.6 percent. The effect of service use was higher than in the hazards model, but fell short of statistical significance. Consistent with the overall hazards model, support availability increases the likelihood that the diverted customer is a long-term community dweller. In this analysis, however, it fell short of statistical significance.

In a final regression analysis, long term and short term community dwellers were again analyzed, but the analysis was limited to diverted customers at or near the poverty level --those for whom the CARE Assessment indicated Medicaid as a likely payment source for support services. As mentioned earlier, the Medicaid variable was used as a proxy for poverty. In this analysis, very few statistically significant results were achieved, probably because the number of cases of diverted customers with Medicaid as a potential payment source for support services was small. The analysis should be interpreted with caution. The major findings are that the more rural the

area in which the customer lives (higher degree of rurality) the more likely the diverted customer was to have long term community tenure. Living alone reduced the likelihood of having long-term community tenure. The service use variable indicates that service use increases the likelihood that the diverted customer is a long-term community dweller. It was not significant however. This is probably because service use, in part, serves as a proxy for the (unmeasured) changes in LTC score from the original assessment.

### ***Discussion of the hazards model and logistic regression***

Using the Andersen Model nomenclature of predisposing, enabling, and need factors, the results from these analyses of diverted customers have been compared to other research findings cited in the literature review.

### ***Findings Related to Predisposing Factors***

Age has been found to be a statistically significant predisposing factor in NF admission in other research (Black et al., 1999; Cohen, Tell, & Wallack, 1986; Gaugler, Edwards, Femia, Zarit, Stephens, Townsend, & Greene, 2000; Greene & Ondrich, 1990; Jette, et al. 1992; Liu, Coughlin, & McBride, 1991; and Weissert & Cready, 1989). Age was statistically significant in the hazards model but not in the logistic regression. This suggests that increases in age may place older adults at greater risk of permanent NF admission. Increases in age, however, do not distinguish a short stay versus a long stay in the community during the first 18 months after diversion from NF. Gender was not significant in any of the analyses. Montgomery and Kosloski (1994) note that despite the fact that most of the NF residents are female, gender is not consistently found to be a factor associated with admission to NF.

Diverted customers were more likely to live alone in the earlier analysis of diverted customers compared to non-diverted customers. Living alone was not statistically significant in the overall hazards model or the logistic regression, however, it did show up as significant for low-income diverted customers. The importance of living alone has been documented in previous research. One study reported that being widowed or never married was a risk factor for NF admission (Cohen, Tell, & Wallack, 1986) and another study (Greene & Ondrich, 1990) reported that living alone was a risk factor for NF admission. Whether diverted customers were living in AL was included in the analysis of factors that contribute to community tenure and it was statistically significant. There were not any research studies that examined NF admission among older adults living in AL.

The impairment levels of diverted customers in AL were similar to that of diverted customers overall in the sample. It may be that living in AL indicates a degree of frailty that has not been reflected in the other explanatory variables. It is also possible that AL residents may end up entering an NF permanently because they run out of resources and can no longer afford AL. Rurality was not significant in either the overall hazards model or the logistic regression, but it did show up as significant for low-income diverted customers. While there are not many studies noting differences in urban and rural status, Penrod (2001) found that older adults in rural areas are older upon NF admission, but not as impaired as their urban counterparts.

### ***Findings Related to Enabling Factors***

Support availability was statistically significant in the hazards model and the logistic regression. The more support the diverted customer had, the less likely they were to enter the NF permanently. There were not any research studies cited in the literature review that measured support availability. Gaugler et al. (2000) found that the duration of the caregiving role led to a slight delay in NF admission because long-term caregivers are committed to remaining in this role. The CARE Assessment does not measure the duration of the caregiving role.

In addition, Kane, Reinardy, Penrod, and Huck (1999) note in their study of family caregiving following a hospital stay, caregiving is labor intensive during the six weeks following discharge. Findings from the interviews conducted with diverted customers were consistent with this conclusion by Kane et al.. Diverted customers and primary caregivers reported that their need for formal and informal support was greatest upon hospital discharge. Greater levels of support helped diverted customers who had a hospital stay get through this transition from the hospital or a skilled nursing facility to home, which would explain how diverted customers are able to remain in the community.

The variable for location of the CARE Assessment was statistically significant in all of the analyses for diverted customers assessed in either the hospital or NF. It is likely that diverted customers assessed in these locations were assessed while they were having an acute episode from which they later recovered. It appears they were able to receive the necessary services to get through the “crisis” period and then maintain community tenure. There were not any research studies that have a similar measure as location of the CARE Assessment, although the findings noted earlier by Kane et al. involved older adults who had been hospitalized.

Medicaid as a potential payment for support services was highly statistically significant in the hazards model and the logistic regression. Montgomery and Kosloski (1994) found an association between eligibility for Medicaid and NF placement. Hours of service use were not statistically significant. Two trends may explain this finding. First, hours of service use may reflect increasing frailty; second, it may reflect a means to compensate for diverted customers increasing frailty. It should also be pointed out that some of the effects of service use might be picked up in the “support availability” variable, which includes formal and informal support. Unfortunately, data to reflect *changes* in these factors that occurred after the CARE Assessment were for the most part unavailable. Thus, data on *changes in functional status* (ADL/IADL/LTC score) or *changes in the availability of caregiver support*, which may well have occurred over the 18 months of follow-up, could not be included in the analyses.

Other studies of NF placement have found that system supply characteristics, such as the availability of NF beds and home health services, predict NF placement (Penrod, 2001). Community tenure for diverted customers in Kansas might also be affected by such factors, however, they were not included in the scope of this project.

### ***Findings Related to Need Factors***

The LTC score was statistically significant in the hazards model only and diverted customers with higher LTC scores were less likely to have a permanent NF admission. This should be interpreted as meaning that diverted customers with high LTC scores are able to stay in the community. As noted previously, the LTC score is calculated at the time of the CARE Assessment when the older adult is most likely to have the highest level of impairment. Over time, impairment levels may decrease. Other research studies found higher impairment levels were associated with NF admission (Engle & Graney, 1993; Hansen et al., 1999; Lieu et al., 1991; and Weissert & Cready, 1989).

Each diverted customer's situation is unique in terms of resources and challenges. The case illustration that follows descriptively pulls together the quantitative findings about community tenure in the words of a diverted customer and her family. The case manager's role is to help the older adult capitalize on their resources while removing barriers that would otherwise reduce the chances that the older adult can remain in the community.

### **Case Illustration: Successful Community Tenure**

Mary is an 84 year-old female who lives in a small town in Kansas with her husband, David. The couple has lived in the area for over a half century. One day, she noticed that she was suddenly having difficulties in walking. David took Mary to the nearby hospital where doctors diagnosed the problem as a stroke. After her condition was stabilized in the hospital, she needed physical therapy to regain her ability to walk. Although she received a CARE Assessment, she decided to transfer to an extended care unit in the hospital to receive the therapy. It was obvious that she was going to require more care after she was discharged. The couple has two daughters who live out of the state and they counted on their daughters help in getting through Mary's health crisis. David stated, "We really kind of sit here by ourselves, because we have nobody here in town. And, frankly, most of our close friends have passed away. When they ask us who shall we call if you need help, you know, it's hard for us to mark down somebody, because we don't have anybody." Mary echoes this statement: "Yeah, you get a certain age and you don't have friends and family left." The couple used to have 10 to 12 couples in the community that they were friends with, but all of them are deceased. Both daughters visited their parents while Mary was still in the hospital to explore options for care and make necessary arrangements for Mary to return home. The daughters worked with the case manager to arrange for community-based services. During the three weeks of Mary's hospitalization, her daughters made the following arrangements for their parents:

- Building a ramp at the couple's home to make it wheel-chair accessible
- Arranging home health care to start skilled nursing, speech, physical therapy, and home health aid services
- Starting meals-on-wheels
- Asking neighbors to become Lifeline respondents
- Hiring two paid caregivers who help Mary with personal care in the morning and evening, daily, and clean the house weekly

The daughters were very concerned about the health of their parents because David also had multiple health problems. In addition, David had to take over some of the light duty housework that Mary had done in the past. The daughters took turns calling their parents frequently to monitor the situation and give support. Later on, the couple had spent their savings to keep hired caregivers for Mary's care. The daughters helped the couple apply for Medicaid-HCBS/FE so that Mary was able to continue to receive help for her personal care as well as homemaking. It has been more than two years since the CARE Assessment and Mary continues to live at home with help from her family, neighbors, and publicly funded services.

As noted in the preceding analyses and summarized in the case scenario, there are multiple factors that contribute to community tenure. The next section on SPFS utilization, costs of services, and savings to the state, build on the findings related to community tenure.

## D) Publicly Funded Service Utilization, Costs and Savings

As noted earlier, of the 599 older adults who were diverted, 31.8% received State Publicly Funded Services (SPFS) by the 90<sup>th</sup> day after their CARE Assessment (Table 3). In addition, of the diverted older adults that were receiving SPFS at the time of the 30-Day Follow-Up, almost 40% were still in the community at the 540<sup>th</sup> day (Table 4). One of the purposes of this project was to identify services that help older adults remain in their homes and analyze related costs and savings in order to assist policy makers in developing effective state policies and practices. This section examines actual service use by diverted customers and costs of SPFS during the 18-month period. The actual costs associated with the use of SPFS were analyzed and the cost savings accrued by the state are provided next. This analysis is placed within the context of the following questions.

How many diverted customers are using SPFS?

What state services are diverted customers using while in the community, for how long, and at what cost per customer?

What are the cost savings when customers use state services and thereby avoid NF admission?

What are the benefits of SPFS to diverted customers?

### ➤ **How many diverted customers are using SPFS?**

- One hundred and thirty-nine diverted customers used SGF and/or OAA services while in the community during the 18 months they were followed.
- Eighty-nine diverted customers used Medicaid-HCBS/FE and TCM<sup>10</sup> services while in the community during these 18 months.
- Approximately 10 diverted customers received both SGF and/or OAA and Medicaid-HCBS/FE services, including targeted case management and case management, simultaneously during the 18 months examined.

### ➤ **What state services are diverted customers using while in the community, for how long, and at what cost per customer?**

Table 9, below, displays the most frequently used services in terms of the units received, the length of service use and the cost of services received.

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<sup>10</sup> In this report, Case Management funded as a Medicaid Administrative cost is included in TCM.

**Table 9**  
**Most Frequently Used SPFS Services by Diverted Customers Over an 18-Month**  
**Period by Units of Use, Months Received & Cost Per Customer (Average) <sup>11</sup>**

		Average Total Units** Per Customer	Average Total Months Received Services Per Customer	Average Total Cost of Service Per Customer
<b>SGF and/or OAA * (n=139)</b>				
Home Delivered Meals	<b>n</b> 79	84.51	4.41	\$320.48
Assessment	52	10.38	1.00	\$206.52
Case Management	36	15.85	3.78	\$170.31
Homemaker	25	54.89	5.92	\$795.71
Attendant Care	21	37.39	5.05	\$563.30
Congregate Meals	18	65.61	5.00	\$269.89
<b>Medicaid-HCBS/FE (n=89)</b>				
Targeted Case Management	89	92.74	8.69	\$370.95
Health Care Attendant II	73	615.45	10.12	\$3400.07
Personal Emergency Service	40	10.31	10.28	\$98.33
Wellness Monitoring	29	2.83	2.79	\$41.21
Health Care Attendant I	21	128.39	6.62	\$647.94

\* SGF and/or OAA services (e.g., ASMT, AASMT and IAASMT), case management services (e.g., CMGT, CMGTS and CMGTJ), and congregate meals (e.g., CMEL and CMELH) are presented as composite indicators of their service type. These services are based on the KDOA taxonomy.

\*\* All units represent one-hour increments except for ASMT. One unit of ASMT is equivalent to fifteen minutes.

- Of the SGF and/or OAA services, home delivered meals and assessment were used by the greatest number of customers, followed by case management, homemaker, attendant care and congregate meals. Attendant care and homemaker services were used, on average, longer than other SGF and/or OAA services.
- Of the Medicaid-HCBS/FE and targeted case management (TCM) services, TCM and health care attendant II were used by the greatest number of customers, followed by personal emergency service, wellness monitoring and health care attendant I. The Medicaid-HCBS/FE and TCM services used the longest were personal emergency service, and health care attendant II.

Table 10 details the total average and monthly average service costs for SGF and/or OAA and Medicaid-HCBS/FE services, including TCM.

<sup>11</sup> The range on each of these variables is provided in Tables 10 and 11 of the Technical Report.

**Table 10**  
**Average State Publicly Funded Service Use by**  
**Diverted Customers Over an 18-month Period**

<b>SGF and/or OAA Services (n=139)</b>	<b>Average</b>
Total Number of Services Used (Range/SD, 1.00-7.00/1.10)	2.01
Total Months of Service Use (Range/SD, 1.00-11.00/2.89)	4.27
Total Cost of Service Use (Range/SD, 3.31-3417.86/\$613.84)	\$573.77
Average Monthly Cost	\$134.77
<b>Medicaid-HCBS/FE Services (n=89)</b>	
Total Number of Services Used (Range/SD, 1.00-6.00/1.13)	3.02
Total Months of Service Use (Range/SD, 1.00-18.00/6.20)	10.72
Total Cost of Service Use (Range/SD, 14.00-14936.79/\$3330.31)	\$8561.68
Average Monthly Cost	\$798.66

- The mean number of SGF and/or OAA services used was 2.01. On average, these customers’ service use extended 4.27 months and cost \$573.77 over the 18 months of tracking. The average monthly cost of these services was \$134.77.
  - The mean number of Medicaid-HCBS/FE and TCM services used was 3.02 services over 10.72 months and cost \$8561.68 over the 18 months of tracking. The average monthly cost of these services was \$798.66.
  - While Medicaid-HCBS/FE and TCM service costs were considerably higher than SGF and/or OAA services, averaging \$8561.68 compared to \$573.77, they were used for a longer period of time. Further, the Medicaid-HCBS/FE costs represent the total average cost per service customer (e.g., the total average cost includes 60% federal matching funds and 40% state funds).<sup>12</sup>
- **What are the cost savings when customers use state services and thereby avoid NF admission?**

OALTC staff conducted a cost-benefit analysis using actual service data and NF cost data. The estimated average monthly cost of NF care is \$2,310.00.<sup>13</sup> A major consideration in evaluating the effectiveness of SPFS is the cost of providing community-based services in lieu of NF care. It is important to note that service customers in this sample would have likely qualified for Medicaid upon entry to a NF based on their eligibility for SGF and/or OAA, Medicaid-HCBS/FE, and TCM. The following information was used to derive the results presented below in Table 11.

<sup>12</sup> Medicaid Administrative Case Management is a 50% match, however none of the customers received this service.

<sup>13</sup> This information was provided by KDOA.



- The average length of service use (column B) was calculated by summing the total number of months in which each customer received one or more services, and computing a mean value of this figure.
- The average monthly state share of services (column C) was derived by totaling service costs and dividing by the average number of months customers received services (column B). SGF and/or OAA services were calculated at 100% of their cost, and Medicaid-HCBS/FE and TCM were figured at 40% of costs since the state receives 60% federal matching funds.<sup>14</sup>
- In calculating the average monthly state share of NF cost (column D), OALTC assumed that customers who received SGF and/or OAA and Medicaid-HCBS/FE and TCM services would have likely qualified for Medicaid upon entering a NF. Thus, the NF cost is calculated at 40% of the statewide monthly average of \$2,310.00 since the state receives 60% federal matching funds.
- The state savings achieved by use of SPFS (column F) was attained by multiplying the average monthly savings (column E) by the number of persons that received SGF and/or OAA and Medicaid-HCBS/FE services (column A), including TCM, by the average months of service use (column B).

**Table 11:  
Actual State Cost Savings for SPFS Customers Based on 18 Months  
of Community Tenure Tracking Following the CARE Assessment**

(A) Number of Customers by Service	(B) Average months of service use	(C) The average monthly state share of services	(D) The average monthly state share of NF costs	(E) Average monthly savings (column D less column C)	(F) State savings (Multiply Columns A, B, & E)
SGF, OAA (n=139)	4.27	\$134.77	\$924.00	\$789.23	\$468,431.68
HCBS/FE (n=89)	10.72	\$319.46	\$924.00	\$604.54	\$576,779.52

**Based on the actual service utilization of the diverted adults in our sample, for every month that an older adult is diverted from NF care and is able to remain in a community setting with SPFS, the state saves \$789.23 if SGF and/or OAA services are provided and \$604.54 if Medicaid-HCBS/FE and TMC services are provided.**

**The actual total state cost savings achieved through the customers diverted in our sample was \$468,431.68 for SGF and/or OAA service customers and \$576,779.52 for Medicaid-HCBS/FE service customers, including TCM.** As documented in the FY 2001 Diversion Study Report, many service customers who receive SGF and/or OAA initially later transfer on to Medicaid-HCBS/FE and TCM services. Thus, the cost savings for the state may be even greater than represented in the analyses. In addition, while tracking ended at 18 months, many of these

<sup>14</sup> Medicaid Administrative Case Management is a 50% match, however none of the customers received this service.

customers are still in the community and the benefits of SPFS are still accruing. Refer to Table 1 of this report for data on the community tenure status of these customers during the 18-month period and Tables 3 and 4 for information related to the payment source(s) of SPFS diverted customers used during their community tenure.

The cost analysis is based on a sample of four months of CARE Assessment data. The findings can be extrapolated to a year by multiplying the number of customers (Column A) by three. **The total annual state cost savings is estimated to be \$1,405,295.00 for diverted customers who received SGF and/or OAA services and \$1,730,388.50 for HCBS-FE services, including TCM.**

➤ **What are the benefits of SPFS to diverted customers?**

Older adults have consistently reported that they want community-based long-term care services in lieu of NF care (Leon & Moyer, 1999). The cost analyses detailed above confirmed that SPFS services are a cost-effective means enabling older adults who applied for NF admission and would otherwise be institutionalized to remain in their own homes and/or communities (e.g., assisted living and/or residential board and care homes). The following case examples illustrate the benefits of SPFS for two service customers and detail the state share of their actual service costs.

**Case Example #1: Residing in the community with services:**

Ruby is an 87-year-old customer with diabetes and mild dementia. She has been living at her son's home over 10 years. Her son, John, has been taking care of Ruby in spite of his physical disability caused by a back problem. With the help of two Medicaid-HCBS/FE services, health care attendant II and targeted case management, and one SGF and/or OAA service, assessment, John and his wife were able to manage the care at home. However, Ruby developed incontinence in March of 1999 that made their care situation more challenging. John and his wife had difficulties in attending to extra care tasks caused by Ruby's incontinence. This added demand for care led them to request a CARE Assessment in May 1999. John had a great deal of hesitancy to place Ruby in a nursing facility, as the NFs did not have a good reputation in their community. He was convinced that his mother would be much happier at his home living with family members in a familiar setting. Ruby and John worked together to improve the management of incontinence and started seeing positive results. They decided to continue in-home care instead of using a long-term care facility.

The total state share of caring for Ruby was \$5,274.47 for 16 months of services over an 18-month period, with an average monthly cost of \$329.65 for two Medicaid-HCBS/FE services and one SGF and/or service.

**Case Example #2: Residing in assisted living with services:**

Jane is a 96-year-old customer who resides in an assisted living facility in Kansas. Prior to moving into her current care setting, she was living in an apartment by herself with publicly funded services and help from her daughter who lived in the same community. Jane received four Medicaid-HCBS/FE services: wellness monitoring, Lifeline, health care attendant II, and targeted case management. Although Jane did not have any major medical problems, she became increasingly forgetful and confused. However, her daughter, Ethel, was able to help Jane stay in her apartment by checking on her safety and bringing groceries and meals on a daily basis.

One day, Jane fell on the kitchen and sustained a minor head injury. She did not remember wearing Lifeline and could not get help until Ethel arrived and found her on the floor. Ethel immediately started looking for a nursing facility as she felt Jane needed to live in a care setting where someone checked her more often. Ethel herself was an older adult with some health problems. She felt that she was already physically and mentally stressed to a maximum from her caregiving responsibilities. When Jane and Ethel met with a worker from the AAA for a CARE Assessment, they were informed about assisted living facilities as a care option. Within two weeks, Jane and Ethel found and applied for admission to an assisted living facility close enough to Ethel's home so that she could visit a few times a week. Jane continued to receive the personal care attendant service that was increased to 3 hours/day. Ethel thinks moving into the assisted living facility with publicly funded services was the best choice available because Jane is able to have her own room that allows her privacy and more autonomy compared to a nursing facility.

The total state share of caring for Jane was \$7,512.04 for 16 months of services over an 18-month period, with an average monthly cost of \$469.50 for the four Medicaid-HCBS/FE services.

## Part IV: Implications

This section offers a summary of key policy findings and their implications. The findings and implications are based on quantitative and qualitative data collection and analyses over a three-year period. The key policy findings and related implications are organized based on themes from the research objectives.

### ➤ State Publicly Funded Services are Cost Effective

**The total annual state cost savings based on actual service data for the diverted customers in the sample is estimated to be \$1,405,295.00 for diverted customers who received SGF and/or OAA services and \$1,730,388.50 for HCBS-FE services, including TCM. The grand total yearly cost savings, based on the analysis, is \$3,135,683.50.**

OALTC staff found that for every month that a diverted service customer in the sample remained in the community setting with SPFS, the state saves \$789.23 if SGF and/or OAA services are provided and \$604.54 if Medicaid-HCBS/FE services are provided. The SGF and/or OAA services were used an average of about four months and the Medicaid-HCBS/FE and TCM services were used an average of about 11 months. The total state cost savings for the four waves in the sample was \$1,045,211.20. When these data are extrapolated out for a year of diversions, the total state savings is \$1,405,295.00 for diverted customers who received SGF and/or OAA services and \$1,730,388.50 for HCBS-FE services, including TCM. This results in a grand total of cost savings for all customers diverted over a 12-month period are over 3 million dollars. The analysis was based on the actual cost of SPFS for all diverted customers tracked for 18 months after the CARE Assessment. The cost analysis demonstrates that diverting and maintaining older adults in the community with SPFS as an alternative to the NF provides a good return on the investment of tax dollars.

### ➤ Diverted Customers had High Rates of Community Tenure

**When the tracking of diverted customers ended 18 months after their CARE Assessment, 48.2% (289) of diverted customers were still living in the community.**

The importance of this finding is underscored by the fact that these diverted customers had in fact applied for NF admission but were diverted. Approximately 139 (23%) of the diverted customers were in the community when they died. Within 12 months of the CARE Assessment, the percent of diverted customers who permanently entered an NF had stabilized at 20%. New admissions were being balanced by deaths of previously diverted customers who had been admitted and subsequently died in the NF. Only 171 (28.5%) of the diverted customers had been permanently admitted to the NF by the 18<sup>th</sup> month of follow-up. It appears that if the older adult is able to remain in the community past the first 180 days, their condition stabilizes and they are able to maintain community tenure for long periods of time. These findings point to the

effectiveness of the CARE Assessment process in providing older adults and their families with needed information regarding alternative options to NF care. The quantitative findings are also supported by the qualitative data. Interviewees reported that they were unfamiliar with community based in-home services and that the case manager or CARE assessor provided timely information for immediate use. The CARE Assessment process is a valuable tool in helping diverted customers and their families identify services/options that help them remain in the community.

**The analysis of the mean LTC Threshold Scores at the time of the CARE Assessment found diverted customers with the longest community tenure had only slightly lower scores than diverted customers with the shortest community tenure.**

This analysis illustrates that diverted customers with relatively high LTC Threshold Scores are able to maintain community tenure. It is likely that the combination of formal and informal services contributed to their successful community tenure. This suggests that the LTC score alone cannot predict who can stay in the community. This finding was consistent with the findings from the hazards model analysis and the discriminant analysis indicating that the LTC Threshold Score was not predictive of community tenure or who could be diverted. While a high LTC Threshold Score identifies older adults with high service needs; these needs can often be addressed by services. In addition the high LTC Threshold Score may only be temporary due to an acute episode. Use of the LTC Threshold Score alone may not be sufficient to identify services to meet the needs of older adults.

➤ **State Publicly Funded Services and Informal Support Play an Important Role in Diversion and Community Tenure**

**Diverted customers who received state publicly funded services maintained high rates of community tenure. Additionally, customers indicated that the SPFS they received prevented them from entering an NF.**

Out of the diverted customers still in the community 18 months after the CARE Assessment, 70 (24.2%) were receiving Medicaid-HCBS/FE and SGF and/or OAA services. In addition, of the 102 diverted customers who were receiving SPFS at the 30<sup>th</sup> day after the CARE Assessment, 40 (39.2%) were still in the community at the 540<sup>th</sup> day. The largest decrease in the rate of SPFS customers residing in the community occurred between the 90<sup>th</sup> and 180<sup>th</sup> day after the CARE Assessment. Both the community tenure and interview data show that if SPFS are available to help customers through a health crisis, they are able to continue to maintain community tenure. Diverted customers who were interviewed (n=69) reported that state publicly funded services were essential and could not easily be replaced. Many customers and primary caregivers participating in the interviews reported that each service they received was equally essential and that without the services they would have to go to an NF. Overall, 54% of the customers interviewed for the qualitative portion of the study indicated that they could not live at home without services, and approximately 40% of them said they would have to go to an NF if they did not get services. All of these diverted interviewees had a CARE Assessment, so it is clear

that without services, they would be at high risk of NF placement. These findings indicate that SPFS play a crucial role in helping customers maintain community tenure. However, the timely provision of SPFS is essential in maintaining customers in the community.

**The use of Medicaid-HCBS/FE and SGF and/or OAA before NF admission appears to have an impact on NF length of stay.**

Among non-diverted customers who were short-term Medicaid NF residents, 48 (64.9%) used SPFS prior to admission compared to 178 (42.9%) of the permanent Medicaid NF residents. This suggests that prior knowledge and involvement with state publicly funded services facilitates coordination of discharge and re-entry in the community. In addition, approximately 68% of the permanent Medicaid NF residents did not use Medicaid-HCBS/FE or SGF and/or OAA services before entering the NF. This might help to explain why Medicaid is a risk factor for NF admission, since those older adults who likely be Medicaid-HCBS/FE eligible did not use community-based service before NF admission. As noted previously, if SPFS are available in a timely manner to address the customer's immediate health care crisis, it is possible their condition will stabilize and they can remain in the community. Additional efforts to reduce barriers in applying for state publicly funded services would likely prove cost effective for the state by enabling a higher proportion of lower-income older adults to receive long-term care in the community.

**For many customers the combination of state publicly funded services and informal support was essential for diversion and maintaining community tenure.**

Approximately 26% of diverted customers in one of the sample cohorts received a combination of SPFS and informal services. The analysis of informal support (n = 31) provided some insights about how older Kansans rely on their informal supports to maintain their community tenure. For instance, informal support, by and large, was provided by one family member, and complemented the community-based services received. Customers reported that it was the combination of state publicly funded services and informal services together that enabled them to be diverted and maintain community tenure. In addition, the qualitative interviews uncovered numerous examples that illustrated how older adults can live alone and remain in the community with a combination of publicly funded and informal services. Fifty- nine percent of those living alone did not think they could stay at home without publicly funded services. The quantitative analysis identified half of the diverted customers did live alone. In addition, two-thirds of the diverted customers interviewed for the qualitative analysis lived alone. These interviewees were not socially isolated as demonstrated by the daily contact by primary caregivers for more than 70% of the interviewed customers. Over 50% of the daily contact was face-to-face. If CARE assessors and case managers are alerted to the special needs of high functioning customers living alone, their effort to link these customers to in-home community based services is particularly cost-effective.

These findings highlight the importance of the combination of services older adults receive in maintaining community tenure. The fact that older adults receiving these services were able to maintain high rates of community tenure points to the beneficial impact that state publicly funded services have in supporting informal caregivers. These findings also highlight the

importance of the state and federal caregiver initiatives to support caregivers. Any changes in state publicly funded services provided must be carefully considered in light of the impact the change would have on the informal caregiving system that helps older adults maintain community tenure and delay NF admission.

➤ **Diverted and Non-Diverted Customers had Similar LTC Threshold Scores**

**The difference in the mean LTC Threshold Score between diverted (68.5) and non-diverted (74.0) customers was statistically significant but smaller than expected.**

The expectation was that there would be a larger difference between diverted and non-diverted customers' LTC Threshold Scores. This finding suggests that the functional status at the time of the CARE Assessment may not be the primary predictor of whether older adults will be diverted or non-diverted. The overlap of LTC scores suggests that some non-diverted customers could be residing in the community if services were available in a timely manner. Additional analyses conducted in FY 2001 found that low-income older adults (e.g. they anticipate Medicaid as a potential source of payment for support services) may not have as many home and community based options and therefore enter NFs at an earlier stage than their private pay counterparts. Qualitative analysis of interviews with diverted customers suggests that these older adults' needs can be met in a community setting if sufficient support and services are available. If eligible, these customers could use Medicaid-HCBS/FE to cost effectively remain in the community. Targeting these relatively well functioning customers for increased outreach, and further examination of service availability, is warranted. The analysis of qualitative interviews indicated that timely access to in-home services is crucial for community tenure for frail older adults, and that resource acquisition can be a serious problem for low-income older adults.

➤ **A Few Factors Distinguish Diverted and Non-Diverted Customers**

**Risk factors for NF admission are the predisposing factors—urban residence and living with someone; the enabling factor—Medicaid as a potential payment source for support services; and the need factors—medication management, telephone use, memory/recall, dressing, money management, and eating.**

Diverted customers receiving the Care Assessment who live in urban communities, who lived with someone, who have Medicaid as a potential payment source for support services, and have high scores on the need factors, listed above, are more likely to enter an NF permanently. Risk, as identified in this study, can be used to trigger a *course of action* to target interventions. Risk factors cannot be appropriately used as a checklist to determine who should enter an NF. The analyses conducted for this project have pointed out how predisposing and enabling factors act together with a few need factors to create a situation wherein an older adult is at risk of NF admission. Developing cost-effective programs and customer intervention strategies can mitigate these risks to help maintain older adults in the community with services. Therefore,

these risks may represent areas for potential development of targeted services for these older adults.

**Rural customers had CARE Assessments completed when their care needs were not as great as their urban counterparts.**

Diverted customers in extremely rural areas had an average LTC score of 58.5 while non-diverted rural customers in the same areas average LTC scores were 68.3. Diverted customers in the most populated urban areas had an average LTC score of 71 while non-diverted customers in the same areas had an average LTC score of 76.8. The data point out that customers receiving the CARE Assessment in urban areas, in general, were more impaired. By the time older adults receive the CARE Assessment they are in need of increased services and it may be too late for community-based services to prevent NF admission. The CARE Assessment may be the first point of access to community-based services for customers living in extremely rural areas. This may explain why rural customers who received the CARE assessment at home were more likely to be diverted. In addition, rural customers may not be aware of their LTC service options, and physicians may be quicker to refer older adults for a CARE Assessment. This indicates it would be helpful to increase awareness by rural customers of their in-home community based service options before they face a health care crisis.

➤ **A Number of Factors are Associated with Increased Community Tenure**

**Diverted customers who indicated Medicaid as a potential payment source for support services are two times as likely to permanently enter an NF. However, the use of state publicly funded services, including Medicaid-HCBS/FE may reduce this risk.**

In the hazards model that included all diverted customers, the variable “Medicaid as a potential payment source for support services” (a proxy for low-income) was a highly significant risk factor of permanent NF admission. However, diverted customers who actually used Medicaid-HCBS/FE or SGF and/or OAA services (meals were not included in the analysis) did not have an increased risk of permanent NF admission. Since these service customers are, by definition, lower-income, it appears that using state publicly funded services mitigates their risk of NF admission. As noted previously, the cost analysis demonstrates that diverting and maintaining older adults in the community with SPFS as an alternative to the NF is cost effective for the state. Increased outreach to low-income customers and reducing the barriers (perceived ineligibility) to applying for Medicaid-HCBS/FE would help these customers access services in a timely manner at the point of a health care crisis and reduce their vulnerability to NF admission.

**Support availability contributes to the community tenure of diverted customers and the risk of NF admission is reduced by 16% when part time intermittent support is available.**

The fact that support availability is instrumental in reducing the risk of NF admission is important because the level of support can be increased either through formal sources or informal sources to help older adults remain in the community. It is important to understand that the



combination of informal and formal services is unique for each person. It is in the uniqueness that opportunities exist for case managers to bring together resources to help older adults be diverted and maintain community tenure.

**Low-income diverted customers in urban areas are at 35% more risk of permanent NF admission than low-income diverted customers in rural areas. In addition, low-income diverted customers living alone had more than twice the risk of permanent NF admission.**

The risk of permanent NF admission for low-income urban residents may be the result of social isolation and the lack of social resources, such as family or friends. The finding suggests the image of the low-income, older adult residing in single room occupancy hotels in the inner city is accurate. These older adults could benefit from outreach efforts to help them think about and prepare for future LTC needs. In addition, case managers and AAAs may need to work with other social service agencies and providers, as well as churches, to develop informal networks to make up for the absence of support from family and friends.

The previous implication illustrates the utility of the Andersen Social-Behavioral Model of Health Care Use to explain the utilization of health services. The predisposing factors in the Andersen Model, such as age, gender and whether a person lives in an urban or rural setting are essentially unchangeable. However, the enabling factors, such as living alone and source of payment for support services can reduce the influence that the predisposing factors may exert on risk of NF admission.

**An additional factor that contributed to diverted customers community tenure was having the CARE Assessment completed when the diverted customer was in the hospital or in an NF.**

The analyses of factors that contribute to community tenure suggest that when the CARE Assessment was conducted in the hospital or the NF, the risk of permanent NF admission decreased. Approximately 60% of the diverted customers had their CARE Assessment completed while in the hospital. Also, 12% of the diverted customers had their CARE Assessment completed in the NF. Some diverted customers were admitted to the NF for a stay of less than 30 days, however, when their stay approached the 30<sup>th</sup> day, the CARE Assessment was completed to comply with the CARE Program regulations. Diverted customers reported they had experienced an acute medical episode, which prompted consideration of the NF admission. Ultimately, after a hospitalization and/or NF stay for rehabilitation, diverted customers recovered and were able to successfully return and remain in the community.

**Older adults who were in AL at the 30-Day CARE Follow-Up were at greater risk (1.5 times) of permanent NF admission.**

In the first hazards model analysis that included all diverted customers, living in AL was statistically significant as a risk factor for permanent NF admission. In the hazards model analysis of low-income diverted customers, living in AL, however, was not a risk factor for NF admission. These findings suggest that private-pay diverted customers in AL may be spending

down their assets and then transferring to NF on Medicaid. This finding warrants further examination and analysis.

➤ **The Decision to Enter a Nursing Facility is a Complex Issue**

**Interviews with diverted customers and their primary caregivers illustrated how older adults are using NF admission for purposes other than permanent admission. The sequences of steps and decision-making when considering NF admission suggest NF admission does not follow a linear process of declining function.**

Decision-making and transitions at the time of NF placement is very complex. Diverted customers used different paths at the time of the CARE Assessment. Many customers moved from the hospital to the NF for rehabilitative care and eventually back to the community, while others remained in their own home from the time of the CARE Assessment. Another important finding is that many diverted customers enter the NF for a short period, but then re-enter the community and remain there. As noted earlier, over 60% of the diverted customers had a short NF stay prior to their diversion. Training would help providers and case managers enhance their understanding of paths from one setting to another. Efforts to enhance or develop services that support the different paths customers actually utilize could include case management from the point of hospitalization to return to the community.

**Many customers were unprepared for decision-making largely because of the unanticipated changes in their health status.**

It is clear that many older adults do not plan for the possibility of moving out of their home even if they are aware that their health condition has declined in recent years. The CARE Assessment was mainly used as the customers and their caregivers perceived that NF placement was inevitable as a result of an unanticipated change in health status. However, there were some customers who used the CARE Assessment as a part of their advanced care planning. Increased education about planning for future long-term care needs is needed.

**Case managers should assess the decision-making style of their customers to most effectively work with the customer and family.**

One major finding was that diverted customers coped with the critical transition from one setting to another while relying on different styles of decision-making. Three primary styles of decision-making were described as: autonomous, collaborative and delegated. The customers who had little control of the decision-making process can especially benefit from active involvement of case managers who promote an empowering environment and ultimately increase older adults' autonomy in the decision-making process. By maintaining frequent contact and staying involved with the customers with a high risk for institutionalization, the case managers can act in a timely manner to coordinate and adjust services. This is especially true for customers who entered the NF with an intention to return to the community.

**The case managers played a vital role during the decision-making process when older adults were considering NF and this was consistently reported by diverted customers during the qualitative interviews.**

Interviewees indicated that the decision-making process was complex, and multiple opinions influence decision-making. In the hospital, the decision also had to be made under pressure to discharge. Case managers and CARE Assessors need to be involved early in the decision-making process and older adults and family members need more information regarding options before facing the decision to apply for NF admission. Some interviewed customers indicated that they did not know home and community based services were available, so they applied for and entered an NF. **Knowledge gained through the CARE Assessment process made it possible for them to plan to return home. Had they known about community-based services and been able to access them quickly, their NF admission might have been avoided.**

For those customers who are experiencing a gradual decline in their physical and cognitive functioning, they and their family caregivers need an opportunity to meet with a case manager to explore options for care well in advance of application for NF admission. Customers indicated that advocacy skills of case managers and their timely and consistent involvement with older adults at risk for a permanent NF placement can make an important difference in keeping frail older adults receiving publicly-funded service in the community.

## **Part V: Conclusion**

When projecting program funding needs, policy makers should assess older adults' need for care and services, and consider their preferences about types of services and location of service delivery. The Andersen Social-Behavioral Model of Health Care Use illustrates that older adults use services based on predisposing factors, enabling factors and need factors. The application for NF admission indicates the consumer likely requires LTC services. The CARE Assessment is an important tool to measure the need and match older adults with appropriate community-based services.

The analysis of three years of quantitative and qualitative data demonstrated that publicly funded community-based services are cost effective and diverted customers can be successfully diverted and remain in the community for over 18 months. What is unknown is how long the benefits of community tenure will continue to accrue for the diverted customers and the state, since almost half of the sample is still in the community. The analysis of community tenure findings indicated that low-income older adults are at greater risk of permanent NF admission. If the low-income, older adult believes that NF admission is necessary and they are unaware of community-based services, the opportunity for diversion and accompanying cost savings of community tenure are lost. However, cost-effective community-based alternatives for these low-income older adults can mitigate this risk of permanent NF admission. In light of current financially limited state resources, efforts to help older adults access these cost-effective alternatives are needed.

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## Glossary

**Andersen Social-Behavioral Model of Health Care Use** - The Andersen Model is widely used to understand patterns of health services use for older adults. Introduced in the 1970's, it serves to categorize personal and environmental factors, which in concert lead to the use of healthcare resources by older adults (Andersen, 1995; Andersen & Newman, 1973). Andersen's model is comprised of three categories of factors influencing service use: predisposing, enabling and need factors. These factors ultimately predict service use.

**CARE Assessment** - The CARE Assessment (Appendix A) gathers information about the person's potential need for specialized services, functional ability, available support systems, and recent problems and risks at the point they are applying for NF admission. It also provides the older adult with information regarding their LTC options. The CARE Program tracks diversion status of customers at the 30<sup>th</sup> and the 90<sup>th</sup> day.

**CARE Program** - The Client Assessment, Referral, and Evaluation (CARE) Program is administered by KDOA. In Kansas, all older adults seeking admission to a nursing facility (NF) must have a CARE Assessment prior to NF admission. Part of the CARE Assessment will be the completion of the Level I PASARR questions prior to NF admission, as required by federal law.

**CARE 30-Day Follow-Up** - AAA CARE Program staff confirm the diversion status of the CARE customers at the 30<sup>th</sup> day after the CARE Assessment when they completed the CARE 30-Day Follow-Up. This method identified the 600 diverted customers being tracked for community tenure. Thereafter, the status of diverted customers at 3-month intervals after the CARE Assessment was confirmed through several data sources.

**Community Based Services** - In this report, community-based services include case management, wellness monitoring, home delivered and congregate meals, personal emergency service, homemaker, and personal care. In this report, the funding sources for these services include Medicaid-HCBS/FE, Senior Care Act, Income Eligible, and Older Americans Act. In this report, in-home community-based service programs are also referred to as **State Publicly Funded Services** (SPFS).

**Community Tenure** - The community tenure of an individual is calculated from the day the diverted customers received the CARE Assessment. Although diversion status is determined when the 30-Day CARE Follow-Up is completed, the time between the CARE Assessment and the 30-day Follow-Up is considered community tenure for any days the customer is not in an NF. If a diverted customer enters an NF at any time after the 30-day Follow-Up, and is discharged in 100 days or less, they are still considered to have maintained community tenure. Diverted customers have maintained community tenure until they die or move into an NF permanently (for a period greater than 100 days).

**Diversion** - Diversion in this project is defined as "those individuals who have been assessed for potential nursing facility placement, and who were residing in community settings with services or were living in board and care facilities when the 30 Day Follow-Up contact was made" (CARE Annual Report, December 30, 1998, page 5).

**Enabling Factors** – Enabling factors are personal, family, and community characteristics that must exist in order for elders to make use of services. Andersen (1995) writes that not only must the services be available to the elder, but that the elder must be able to make use of the services. Recognition of service need enables service utilization to occur. “Health personnel and facilities must be available where people live and work. Then, people must have the means and know-how to get those services...income, health insurance, a regular source of care” (Andersen, 1995, p.3).

**Informal Support** - In this project, informal services are those unpaid services or assistance provided by family, friends, and neighbors to older adults. In addition, the voluntary efforts provided by churches, and service organizations and associations are also informal services.

**Long-Term Care Threshold Score (LTC Score)** - A weighted, composite score calculated based on assessment of ADL, IADL, cognitive function, bladder continence, support, abuse, neglect, exploitation by other, and falls. The LTC score is used to assess the appropriateness for NF and CBS.

**Need Factors** - The need for care and services perceived as a need by the older adult or evaluated by health service providers. “Perceived need is largely a social phenomenon... Evaluated need represents professional judgment about people’s health status and their need for medical care” (Andersen, 1995, p.3).

**Permanent Nursing Facility Admission** - An older adult’s community tenure ends when admitted to an NF for a period of 100 out of 120 days (these do not have to be consecutive days) regardless of subsequent discharge to the community. At this point they will be considered a permanent NF resident and their community tenure has ended. If the person dies in the NF, but their stay is less than 100 days before their death, they will not be considered a permanent NF admission.

**Predisposing Factors** – Predisposing factors are characteristics such as demographic status, social structure, and the elders’ beliefs about health. They include a “broad array of factors that determine the status of a person in the community, his or her ability to cope with presenting problems and commanding resources to deal with these problems” (Andersen, 1995, p.2)

**Service Customer** - For the purposes of this report, a service customer is a person, who after the CARE Assessment, is receiving services funded by any or all of the following sources: 1) The Older Americans Act (OAA) funds; 2) state general funds (SGF), including Senior Care Act (SCA) and Income Eligible (IE), 3) Medicaid Targeted Case Management, 4) Medicaid Administration Case Management, and 5) Medicaid HCBS/FE, funded through a match of state and federal dollars.

**State Publicly Funded Services (SPFS)** - In this report, State Publicly Funded Services include Medicaid-HCBS/FE, Medicaid TCM, Medicaid Case Management, services funded by state general funds such as the Senior Care Act Program, Income Eligible program, and nutrition programs funded by state funds and the Older Americans Act.