

**STATE OF CONNECTICUT MEDICAID  
LONG TERM CARE DEMAND  
PROJECTIONS  
STATE OF CONNECTICUT  
AUGUST 12, 2014**

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# 1

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## Project Overview

For some time, the State of Connecticut (CT or the State) has been actively engaged in rebalancing their Medicaid long-term care (LTC) services from institutional nursing facility (NF) settings, toward more emphasis on home- and community-based services (HCBS) settings. In support of the State's Rebalancing Plan, the State has contracted with Mercer Government Human Services Consulting (Mercer) to assist in the development of projections by town of the supply and demand of LTC services between 2010 and 2025. The State's goal is to enhance the awareness of setting choice amongst LTC consumers and LTC service providers by providing them with the relevant information as they navigate through the myriad of options available to them. The analysis presented in this report is expected to be updated periodically as more current information becomes available.

Success in rebalancing LTC services is commonly measured by the proportion of HCBS users out of all recipients eligible for either NF services or HCBS, the higher the proportion, the more successful the state.

## Progress Since November 2012 Report

The State has invested a significant amount of resources toward creating an environment where Medicaid recipients with a nursing facility level of care (NFLOC) designation are aware of their options, including the option of receiving HCBS. The State aspires to be a leader at the national level in terms of providing LTC services in the home. Since the initial report (November 2012), the State has seen an increase in the ratio of HCBS users to all Long-Term Services and Supports (LTSS) users of 2.9% across the State (53.7% to 56.6%). This measurement applied the 2013 demographic distribution to compare the HCBS ratios of 2011 to those of 2013. Details are illustrated in Appendix A of the Long Term Care Demand Projections Databook (Databook).

The November 2012 report contained statewide HCBS ratio targets for 2025, which were separately determined by demographic category (age, gender, Labor Market Area), and based on levels demonstrated to be achievable by the experience in other states. The November 2012 statewide HCBS ratio target was 75.7%, which was calculated using the 2011 aged, blind, and disabled (ABD) Medicaid population prevalence by demographic category. Application of these same targets to the 2013 ABD Medicaid population prevalence by demographic category results in the 2025 target changing slightly to 75.1%. Details are illustrated on page three of Appendix C in the Databook.

## Limitations

The projections in this report have been prepared for the Connecticut Department of Social Services (DSS). Mercer understands that DSS will be making this report publicly available. To the extent that information in this report is made available to third parties, the entire report should be made available. Users of the data and projections in this report must, in order to avoid misinterpretation of the information, have a sufficient level of understanding and expertise in LTC services and health care modeling.

Town-level projections necessarily involve projections with low numbers of persons in certain projection age/gender cells. Any projection involving such low numbers is subject to significant statistical fluctuation. Towns with no NFs will generally have data showing no, or very few, persons residing in NFs; such persons who were previously residents of the town will have necessarily migrated to other towns. When such a person moves to a NF, his or her address becomes the address of the NF, thereby making that person a resident of the town with the NF. The totality of such movements gives the impression of little to no apparent demand in towns with few or no NF's.

The information presented in this report includes projections of future contingent events. All possible contingencies are not considered. For example, changes to Medicaid eligibility due to legislation or economic circumstance could have a significant effect on the number of persons who use NF or HCBS. Also, changes in types of medical services available could alter the portion of recipients who would be eligible for NF or HCBS. Improvements in mortality beyond that anticipated in the census projections could lead to different proportions of recipients of advanced ages.

*All estimates are based upon the information available at a point in time and are subject to unforeseen and random events. Therefore, any projection must be interpreted as having a likely range of variability from the estimate. Any estimate or projection may not be used or relied upon by any other party or for any other purpose than for which it was issued by Mercer. Mercer is not responsible for the consequences of any unauthorized use.*

Mercer is available to answer any questions on this material contained in this report, or to provide explanations or further details, as may be appropriate. The undersigned credentialed actuaries meet the qualification standards of the American Academy of Actuaries to perform the analyses contained in this report. Mercer is not aware of any direct or indirect financial interest or relationship, including investments or other services that could create a conflict of interest that would impair the objectivity of Mercer's work.

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## Data

Mercer relied on several data sources in the development of these projections. Mercer reviewed the data for reasonability and consistency, but Mercer did not audit it. Data elements include the following listed in the table below:

Data	Source	Use
Population projections (November 1, 2012 edition)	CT State Data Center at the Map and Geographic Information Center	Town-level State population projections by age group and gender. Starting from the 2010 Census, projections are shown for 2015, 2020, and 2025.
Labor Market Areas	CT Department of Labor	Aggregation of towns for projections.
NF Cost Reports	DSS	Information from the NFs on utilization and staffing.
NF 15-Mile Town Radius	DSS	For each town, in addition to the NFs located in that town, those NFs within a 15-mile radius of the town are also listed, up to a maximum of 10 such NFs. The NFs are ranked by the number of available beds.
CT Claims and Eligibility Data	HP, CT's Medicaid data vendor	Classification of Medicaid recipients in the ABD aid category, NFLOC, waiver eligibility, and claims.
ZIP Code to Town Crosswalk	CT Economic Resource Center	Translate eligibility and claimant information, which did not have town of the recipient (but did have ZIP code) to town.
JEN Frailty Index	JEN & Associates	Reporting on the frailty level of NF residents.

Mercer's analysis of the targeted case management (TCM) claim data found that levels of recipients with TCM-only services was similar for January 2009 through April 2010 and the beginning in January 2012, but was approximately 20% of that level in late 2010 and all of 2011. Mercer made data adjustments to treat the number of TCM only recipients as if no such temporary drop existed.

The ZIP code to town crosswalk could not distinguish all 169 towns from one another. Accordingly, the following towns are paired in Mercer's analysis: Cornwall and Warren, Griswold and Lisbon, Stafford and Union.

# 3

## Nursing Facility and Home- and Community-Based Services Definitions

Another common point of necessary clarification when examining statistics nationally or between states is how NF and HCBS are defined. Typically, NF and HCBS together make up what is known as NFLOC. This designation for a Medicaid recipient means that the person in question has, according to the specific State assessments, met the conditions necessary to receive NF services. NF and HCBS together combine to NFLOC because people can choose to receive LTC services either in an institution or HCBS setting.

Setting of Care (either NF or HCBS) is defined in the analysis for each recipient on a month-by-month basis according to the following definitions:

Setting of Care	Definition
NF	If the Assignment Plan Code in the State's eligibility file is populated with 'NHOME' and the enrollee used some form of NF or waiver services during the month, then the person was counted as being NF for that particular month.
HCBS	<p>If the recipient's Assignment Plan Code in the State's eligibility file was populated as one of the codes listed below and the recipient used some form of either NF or waiver services during the month, then the recipient was counted as HCBS for that particular month.</p> <ul style="list-style-type: none"> <li>ABIA Acquired Brain Injury Assignment Waiver</li> <li>ALA Assisted Living Assignment Waiver</li> <li>ASSA Assessment Only Assignment Waiver</li> <li>CBCMA Community Based/Case Managed Assignment Waiver</li> <li>PCAA Personal Care Assistant Assignment Waiver</li> <li>DDS Department of Development Services Comprehensive Waiver</li> <li>IFS Individual and Family Support Waiver</li> <li>MFP Money Follows Person</li> <li>MFPP Money Follows Person — Post</li> <li>EDS DDS Employment and Day Support Waiver</li> <li>HOSPS Hospice — State</li> </ul>
HCBS	Traditionally, the State has included TCM recipients with their HCBS participant counts, even though TCM is a State Plan service, not a waiver service. In order to preserve the State's traditional definition, Mercer has also included unique monthly participant counts of stand-alone TCM users with the unique counts of persons identified as using HCBS in the aforementioned definition.
HCBS	For purposes of calculating home health worker counts, only utilization for people incurring home health claims for four consecutive months in any calendar year were included, regardless of their level of utilization.

# 4

## Labor Market Areas

There are 169 towns in Connecticut, many with relatively small populations and no NFs. Accordingly, the analysis of NFs by town needs to be augmented by analysis on aggregations of towns. Based on discussions with the Connecticut Department of Labor, Mercer decided to include analyses of each of the nine Connecticut Labor Market Areas. The towns that comprise the Connecticut Labor Market Areas are shown in the table in this section.

The Connecticut Labor Market Areas are based on towns that share a high degree of social and economic integration, as based on employment and related commuting. The Labor Market Area shares many characteristics with the New England City and Town Area (NECTA), which is a geographic and statistical entity defined by the United States Office of Management and Budget. The NECTA is used only for the states in the New England area of the United States; areas based on aggregations of counties are used in the other states. Each NECTA has a core urban area with at least 10,000 persons, as well as adjacent towns that have a high degree of social and economic integration with the core urban area as measured by commuting and employment. NECTAs are classified as either metropolitan NECTAs (urban core of at least 50,000 persons) or micropolitan NECTAs (urban core of at least 10,000 but less than 50,000 persons). Individual NECTAs may be comprised of towns from more than one state, but the Connecticut Labor Market Areas consist only of towns in CT.

Labor Market Area	Town
Bridgeport-Stamford-Norwalk	<ul style="list-style-type: none"> <li>• Ansonia</li> <li>• Bridgeport</li> <li>• Darien</li> <li>• Derby</li> <li>• Easton</li> <li>• Fairfield</li> <li>• Greenwich</li> <li>• Milford</li> <li>• Monroe</li> <li>• New Canaan</li> <li>• Newtown</li> <li>• Norwalk</li> <li>• Oxford</li> <li>• Redding</li> <li>• Ridgefield</li> <li>• Seymour</li> <li>• Shelton</li> <li>• Southbury</li> <li>• Stamford</li> <li>• Stratford</li> <li>• Trumbull</li> <li>• Weston</li> <li>• Westport</li> <li>• Wilton</li> <li>• Woodbridge</li> <li>• Danbury</li> </ul>
Danbury	<ul style="list-style-type: none"> <li>• Bethel</li> <li>• Bridgewater</li> <li>• Brookfield</li> <li>• New Fairfield</li> <li>• New Milford</li> <li>• Sherman</li> </ul>

Labor Market Area	Town
Enfield	<ul style="list-style-type: none"> <li>• East Windsor</li> <li>• Enfield</li> <li>• Somers</li> <li>• Suffield</li> <li>• Windsor Locks</li> </ul>
Hartford-West Hartford-East Hartford	<ul style="list-style-type: none"> <li>• Andover</li> <li>• Ashford</li> <li>• Avon</li> <li>• Barkhamsted</li> <li>• Berlin</li> <li>• Bloomfield</li> <li>• Bolton</li> <li>• Bristol</li> <li>• Burlington</li> <li>• Canton</li> <li>• Colchester</li> <li>• Columbia</li> <li>• Coventry</li> <li>• Cromwell</li> <li>• East Granby</li> <li>• East Haddam</li> <li>• East Hampton</li> <li>• East Hartford</li> <li>• Ellington</li> <li>• Farmington</li> <li>• Glastonbury</li> <li>• Granby</li> <li>• Haddam</li> <li>• Hartford</li> <li>• Hartland</li> <li>• Harwinton</li> <li>• Hebron</li> <li>• Lebanon</li> <li>• Manchester</li> <li>• Mansfield</li> <li>• Marlborough</li> <li>• Middlefield</li> <li>• Middletown</li> <li>• New Britain</li> <li>• New Hartford</li> <li>• Newington</li> <li>• Plainville</li> <li>• Plymouth</li> <li>• Portland</li> <li>• Rocky Hill</li> <li>• Simsbury</li> <li>• South Windsor</li> <li>• Southington</li> <li>• Stafford-Union</li> <li>• Thomaston</li> <li>• Tolland</li> <li>• Vernon</li> <li>• West Hartford</li> <li>• Wethersfield</li> <li>• Willington</li> <li>• Windsor</li> </ul>

Labor Market Area	Town	
New Haven	<ul style="list-style-type: none"> <li>• Bethany</li> <li>• Branford</li> <li>• Cheshire</li> <li>• Chester</li> <li>• Clinton</li> <li>• Deep River</li> <li>• Durham</li> <li>• East Haven</li> <li>• Essex</li> <li>• Guilford</li> <li>• Hamden</li> </ul>	<ul style="list-style-type: none"> <li>• Killingworth</li> <li>• Madison</li> <li>• Meriden</li> <li>• New Haven</li> <li>• North Branford</li> <li>• North Haven</li> <li>• Old Saybrook</li> <li>• Orange</li> <li>• Wallingford</li> <li>• West Haven</li> <li>• Westbrook</li> </ul>
Norwich-New London	<ul style="list-style-type: none"> <li>• Bozrah</li> <li>• Canterbury</li> <li>• East Lyme</li> <li>• Franklin</li> <li>• Griswold-Lisbon</li> <li>• Groton</li> <li>• Ledyard</li> <li>• Lyme</li> <li>• Montville</li> <li>• New London</li> </ul>	<ul style="list-style-type: none"> <li>• North Stonington</li> <li>• Norwich</li> <li>• Old Lyme</li> <li>• Preston</li> <li>• Salem</li> <li>• Sprague</li> <li>• Stonington</li> <li>• Voluntown</li> <li>• Waterford</li> </ul>
Torrington	<ul style="list-style-type: none"> <li>• Bethlehem</li> <li>• Canaan</li> <li>• Colebrook</li> <li>• Cornwall-Warren</li> <li>• Goshen</li> <li>• Kent</li> <li>• Litchfield</li> <li>• Morris</li> <li>• Norfolk</li> </ul>	<ul style="list-style-type: none"> <li>• North Canaan</li> <li>• Roxbury</li> <li>• Salisbury</li> <li>• Sharon</li> <li>• Torrington</li> <li>• Washington</li> <li>• Winchester</li> <li>• Woodbury</li> </ul>

Labor Market Area	Town
Waterbury	<ul style="list-style-type: none"> <li>• Beacon Falls</li> <li>• Middlebury</li> <li>• Naugatuck</li> <li>• Prospect</li> <li>• Waterbury</li> <li>• Watertown</li> <li>• Wolcott</li> </ul>
Willimantic-Danielson	<ul style="list-style-type: none"> <li>• Brooklyn</li> <li>• Chaplin</li> <li>• Eastford</li> <li>• Hampton</li> <li>• Killingly</li> <li>• Plainfield</li> <li>• Pomfret</li> <li>• Putnam</li> <li>• Scotland</li> <li>• Sterling</li> <li>• Thompson</li> <li>• Windham</li> <li>• Woodstock</li> </ul>

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## State Population Projections

Population projections were developed by the Connecticut State Data Center at the Map and Geographic Information Center. These are town-level projections by age group and gender. Data from the 2010 Census is the starting point, with projections for 2015, 2020, and 2025. During the development of this August 2014 report, Mercer examined updated statewide population estimates from the American Community Survey, which uses a 1% sample size of the State's population. Mercer determined that these estimates were in alignment with the population projections used in the November 2012 report. Accordingly, no update was made to the age and gender population projections.

Below are additional details regarding the development of the population projections, including methodology. This information is available at: <http://ctsdc.uconn.edu/projections.html> (downloadable data and methodology is included below the interactive map/data visualization).

1. The projections are based on five-year age/sex cohorts by state, county, regional planning organization, and town. The 2010 Census data is based on April 1, 2010 data and the projections include a mix of data from the 2010 Census (April 1, 2010) and annual-based data (birth and mortality data from the Connecticut Department of Public Health by Town). With the census data being the base dataset, the projections are optimized for April 1 projections for 2015, 2020 and 2025.
2. The finalized projections include individual town level fertility rates for Connecticut's eight largest towns (Bridgeport, Danbury, Hartford, New Britain, New Haven, Norwalk, Stamford, and Waterbury) and the remaining towns are grouped into two categories (American Community Survey (ACS) three-year towns and ACS five-year towns) to calculate the fertility rate for these towns. The reason for calculating the fertility rate in this method is that the underlying population projections are developed at the single age level and then grouped into cohorts.

Each town has individually derived migration (in and out) based on town-level census data from 2010, as well as birth and mortality data by single year increments. More details are included in the methodology:

[http://magic.lib.uconn.edu/magic\\_2/data/37800/projectionct\\_37800\\_0000\\_2012\\_s24\\_CTS\\_DC\\_1\\_p.pdf](http://magic.lib.uconn.edu/magic_2/data/37800/projectionct_37800_0000_2012_s24_CTS_DC_1_p.pdf)

3. The birth and mortality data is based on calendar year data from the CT Department of Public Health and is provided at the town level.
4. Group quarters are removed from the projections and then, upon the completion of the projection, this data is added back in to reduce over/under estimation of this population. Refer to the link above for a complete listing of the group quarters (at the end of the document).

The above description was written by Michael Howser of the Connecticut State Data Center.

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## JEN Frailty Index

The frailty risk score was developed under funding by the Robert Wood Johnson Foundation's Medicare/Medicaid Integration Project (University of Maryland Center on Aging, MMIP Technical Assistance Paper No. 12, 2002). The score is based on 13 impairment categories of disease/sign found to be significantly related with a concurrent and future need for LTC services. The categories include:

- Minor ambulatory limitations.
- Severe ambulatory limitations.
- Cognitive developmental disability.
- Chronic mental illness.
- Dementia.
- Sensory disorders.
- Self-care impairment.
- Syncope.
- Cancer.
- Chronic medical disease.
- Pneumonia.
- Renal disorders.
- Other systemic disorders (e.g., septicemia).

For each category, a score of one is assigned if a diagnosis associated with the condition is found on at least one Medicare or Medicaid claim during a specific calendar year of study. No frequency threshold, claim type, provider type or service type selection logic is used. The frailty individual impairment category scores are summed to produce an aggregate frailty risk score. The frailty risk score has been demonstrated to have a linear relationship with the probability of future NF entry.

The above description was written by JEN & Associates.

# 7

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## Analysis

The overarching process for developing this projection is as follows:

1. Project the population of the State by age and gender.
2. Project the proportion of the State population that is Medicaid eligible ABD.
3. Project the proportion of the ABD population that is NFLOC.
4. Project the proportion of the NFLOC population using HCBS services.

This process was conducted at the Labor Market Area Level and projected on the individual towns in the labor markets, then aggregated at the statewide level.

As stated before, Mercer was able to utilize population projections developed by the Connecticut State Data Center by age, gender, and by town, through 2025. These projections include town-by-town, in-migration, and out-migration. Mercer assumed, by town, a constant ABD and NFLOC incidence rate by age and gender. As the projection goes toward 2025, the natural aging of the population leads to a higher proportion of the town population expected to be NFLOC.

Historically the HCBS/NF mix in the State has been moving toward HCBS at approximately 0.50% to 0.75% per year, absent the impact of State-led initiatives. This shift, combined with the aging of the population and higher NFLOC incidence rates which acts against HCBS/NF mix, leads the State to a projected HCBS/NF mix of 56.9% in 2025, absent the impact of State-led initiatives. This 56.9% figure used the 2013 ABD Medicaid population prevalence. In the November 2012 report, which used the 2011 ABD Medicaid population prevalence, this amount was 57.6%.

In Mercer's examination of the historical data, Mercer found that beginning in early 2011, there was a significant acceleration in the HCBS/NF mix as a result of the following State led initiatives:

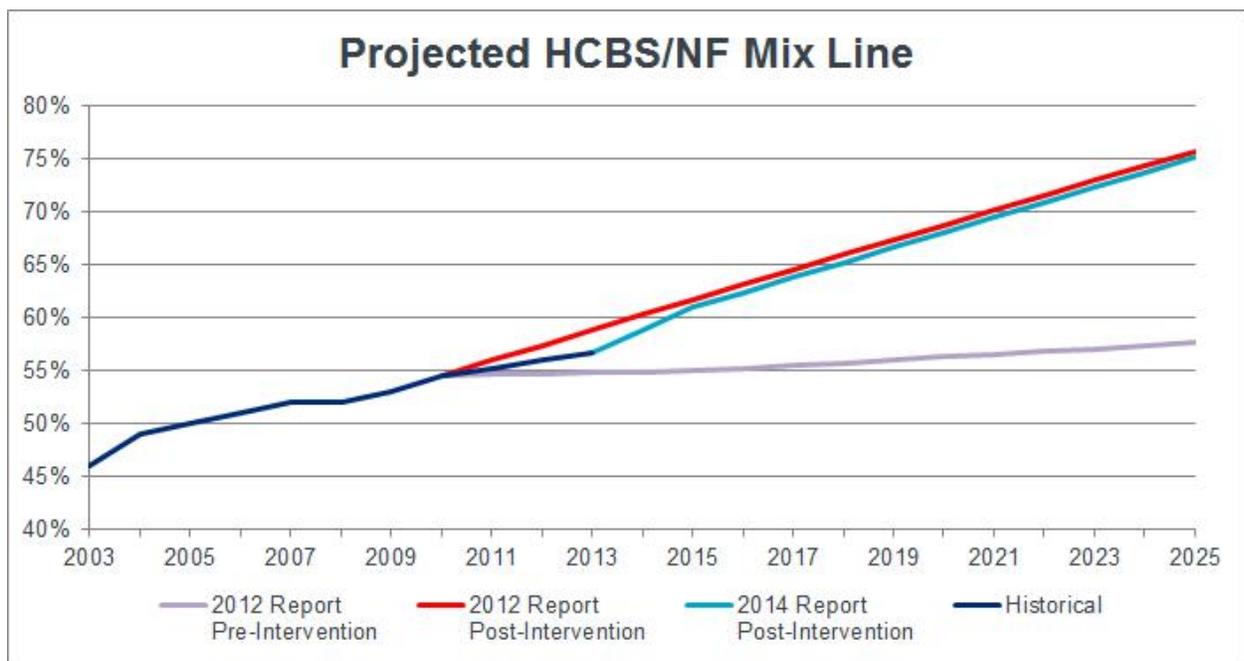
- Money Follows the Person (MFP) Grant.
- Hospital Discharge Planning.
- NF Closure Model.
- Long-Term NF Diversion.
- Pre-Admission Screening Resident Review.

By incorporating the impact of these initiatives into modeling the projected HCBS/NF mix at the statewide level, it is expected to increase proportionately to 75.1% by the year 2025. The final HCBS/NF mix is consistent with HCBS levels currently being achieved in other states. The proportionate increases were developed at the age, gender, and Labor Market Area level. Note: these projections of future HCBS/NF levels presume the State will continue to use current initiatives and will utilize additional initiatives in future years in order to achieve the projected 2025 HCBS levels. Mercer understands the State has continued to expand the MFP workforce

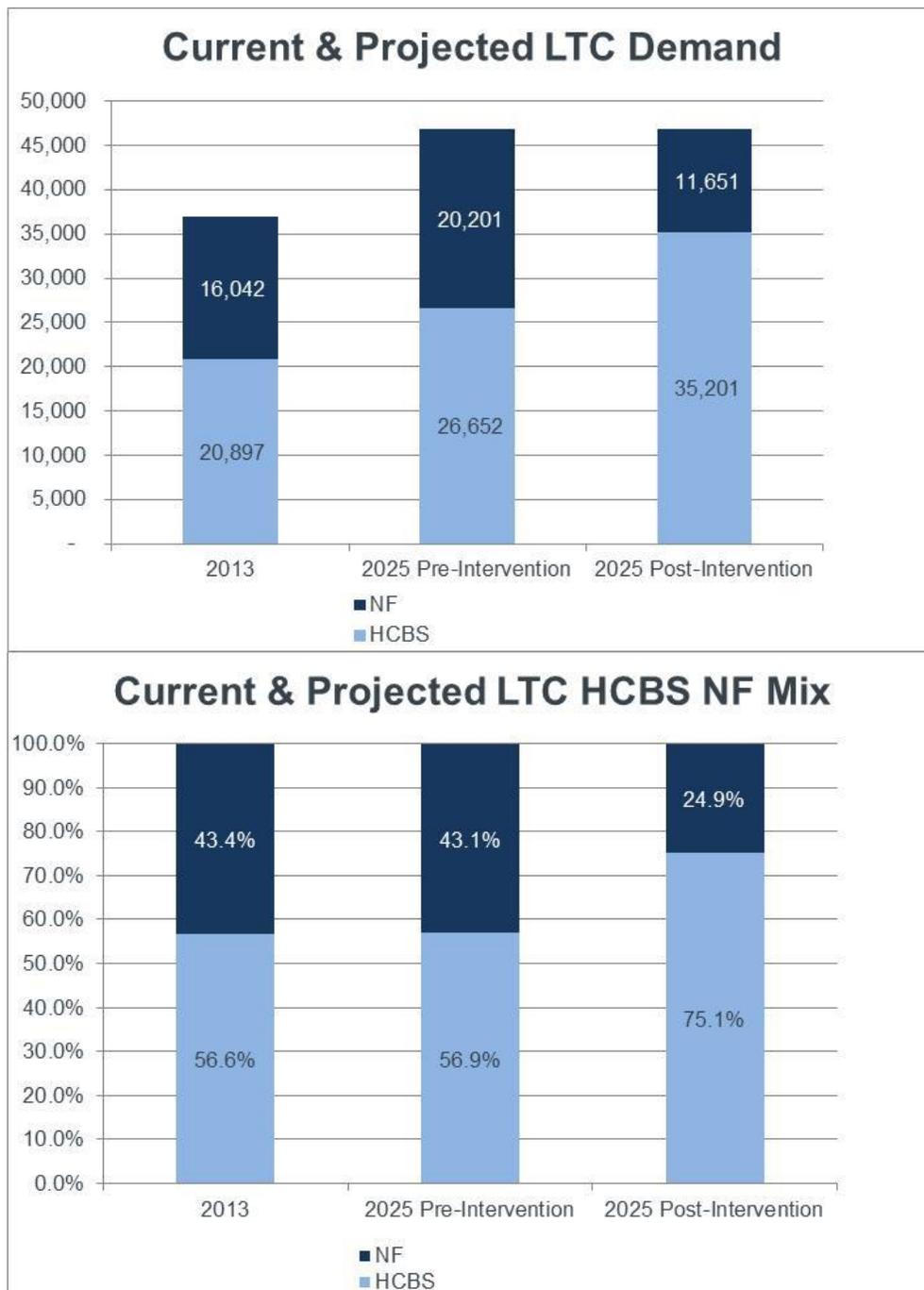
since November 2012, but the effect of this workforce expansion has not been specifically modeled as a distinct initiative. The dedication of additional resources committed to rebalancing, such as the MFP workforce expansion, has the potential to accelerate movement from NF to HCBS settings.

Some labor markets, as illustrated in the labor market templates, were either far behind or far ahead of the statewide average. The HCBS ratios in those markets grew faster or slower than the statewide average depending on how much movement was possible, considering the starting points.

Another element of the modeling includes projecting the demand for NF and HCBS workers as this shift in HCBS/NF mix occurs. The worker supply and demand reported assume a constant proportion by town of HCBS/NF highlighted work groups throughout the projection. As the population ages and the number of user's shifts from NF to HCBS, the worker supply and demand shifts accordingly by town based on the number of people expected to need care under the specific settings.



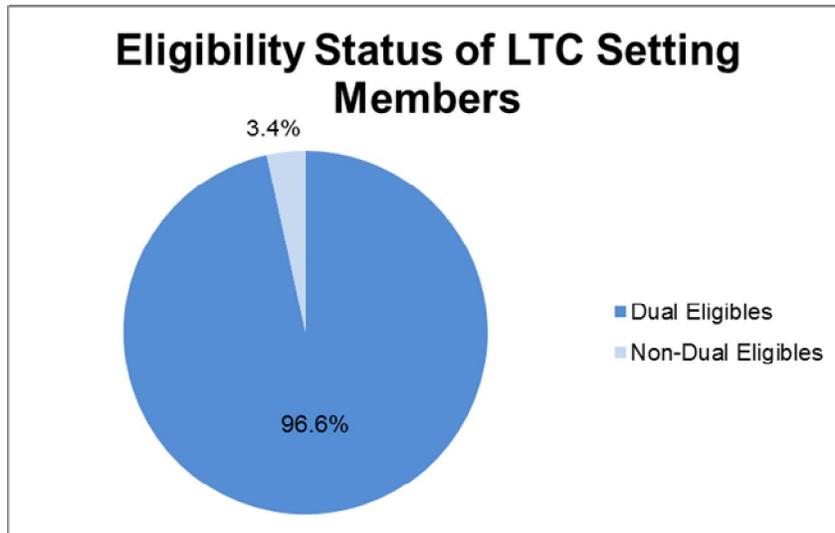
The above chart demonstrates the initial projections from the November 2012 LTC report, the actual observed mix of HCBS and NF between 2010 and 2013, as well as the updated projections based on progress as of the end of 2013.



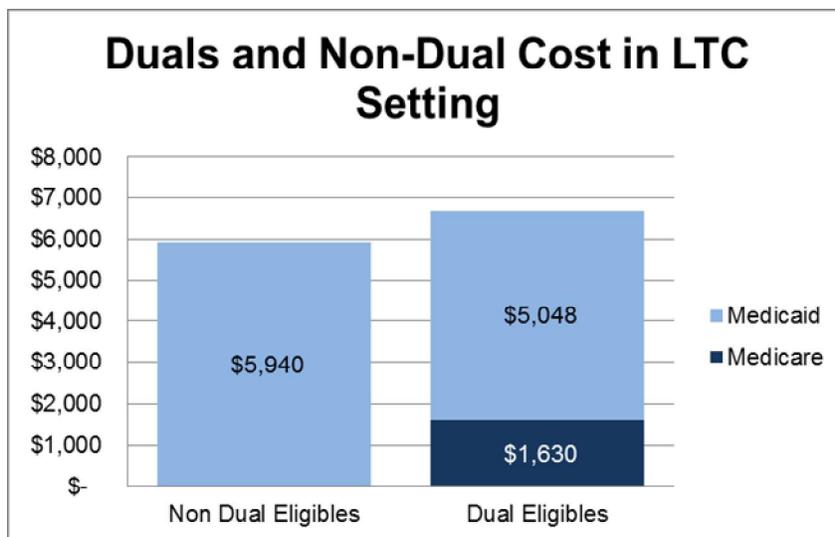
The accompanying charts highlight the number of LTC users and the corresponding HCBS/NF mix pre and post State-led initiatives.

Associated with providing care to NFLOC individuals are the often overlooked costs of acute services consumed by this population. In an effort to assist the State with understanding these costs Mercer worked with data compiled by JEN Associates, Inc. (JEN), provided to JEN by the Centers for Medicare and Medicaid Services and DSS. The data provides a broader view of the LTSS and acute care costs for Medicaid recipients in an Institutional or Community setting.

The following chart is a distribution of 2012 NFLOC member months between Dual Eligibles (Medicare and Medicaid Eligible) and Non-Dual Eligibles (Medicaid only) illustrating the Non-Dual Eligibles represent 3.4% of the member months. Additionally, Non-Dual Eligibles represent only 3.1% of the total LTSS expenditures.

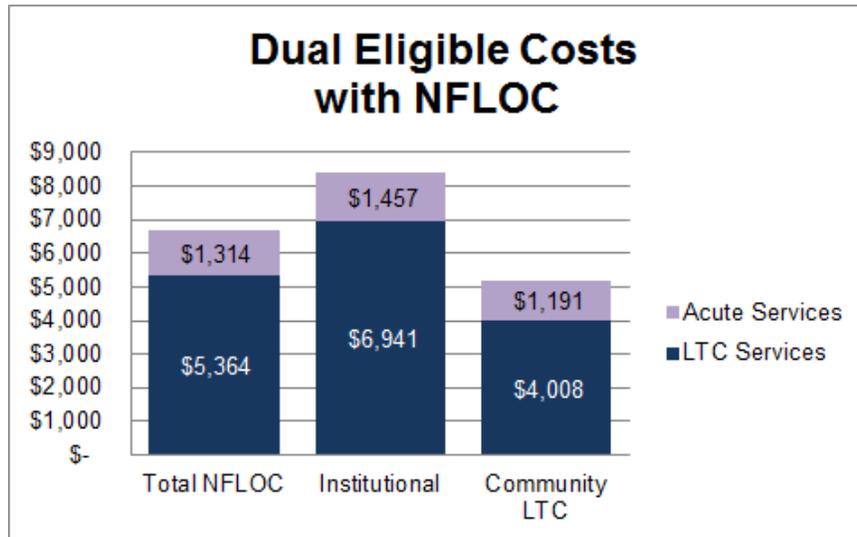


Non-Dual expenditures represent \$5,940 on a per member per month (PMPM) basis, while Dual expenditures represent \$6,678.

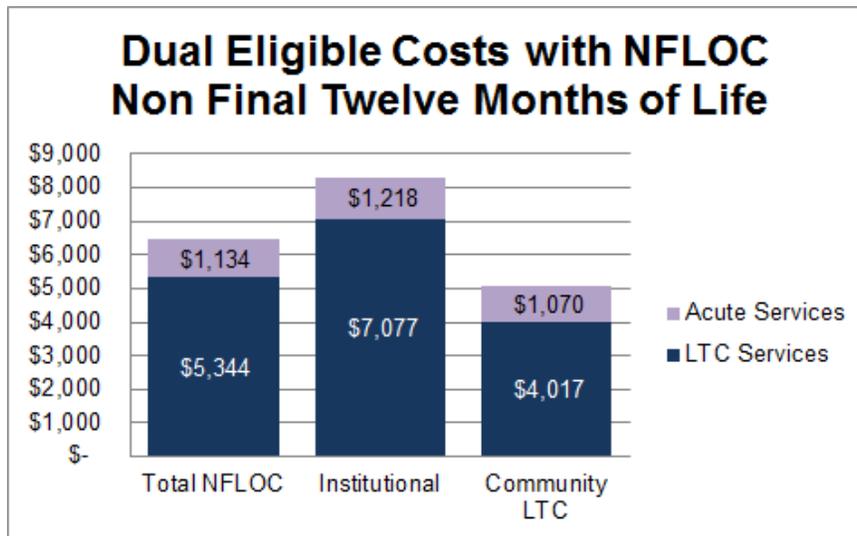


In examining the expenditures, the table below highlights the PMPM costs in total and separately for Institutional and Community LTC, in addition to reporting their acute versus LTSS services. Because Non-Duals comprise a small portion of the membership and expenditures, this summary includes only the Dual Eligibles population.

The total expenditures of Dual Eligible are approximately 20% of total costs of non-LTSS services.



In addition to total costs, Mercer reviewed the acute and LTC services by setting of care for members not in the final twelve months of life. Mercer excluded members in the last twelve months to limit the influence of higher than average expenditures on the acute care cost results. After removing this population, the resulting acute costs are similar to the total population on a PMPM and percentage basis.



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## Acknowledgements

On behalf of DSS, Mercer would like to thank the following who provided essential data and policy guidance needed for the completion of this report.

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Kathleen Shaughnessy, DSS

Barbara Parks Wolf, Office of Policy and Management

Rich Wysocki, DSS

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## Feedback and Comments

Should you have any questions regarding the content of this report, or have suggestions on how to improve the report during future updates, please contact Dawn Lambert at [Dawn.Lambert@ct.gov](mailto:Dawn.Lambert@ct.gov).



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