



Forecasts of the Aging Population, Dementia Prevalence and Use of Long-Term Care Services through 2020 in Washington State

TECHNICAL REPORT

David Mancuso, PhD

In collaboration with the Department of Social and Health Services Aging and Disabilities Services Administration

THIS REPORT provides technical detail about the methods used to produce a series of Area Agency on Aging (AAA) and county long-range forecasts of:

1. Persons meeting selected criteria related to age, income, and race/ethnicity;
2. Prevalence of disability, limited English proficiency, and dementia; and
3. Utilization of Aging and Adult Services in-home, community residential and skilled nursing facility services benchmarked to June 2010 utilization rates.

For these forecasts, we combined new population projection data maintained by the Office of Financial Management (OFM) with other data sources containing county, state or national estimates of prevalence or service utilization, as described in detail more below. The forecasts associated with item 2 were derived using synthetic estimation processes. Synthetic estimation is a statistical technique that produces “small area” population prevalence estimates by using information from larger population areas. For reference, a table containing Washington State level forecasts of the measures developed in this study is presented at the end of this technical report.

OFM County-Level Estimation and Projection Model (the “OFM Projection Model”)

The OFM Projection Model provided the detailed “small-area” county-level population estimates and forecasts from 2010 to 2020. OFM contracted with Krupski Consulting LLC in 2010 to develop this new county-level population projection model to augment existing OFM population forecasts with income and health insurance status data from the American Community Survey (ACS). The ACS is administered annually by the United States Census Bureau. The OFM Projection Model integrates OFM long-range population forecasts with data essential for forecasting eligibility for means-tested social and health services, including potential eligibility for Medicaid through the expansion of coverage for low-income adults in 2014 under the Affordable Care Act (ACA). It is anticipated that the OFM Projection Model will be updated on an annual basis following the release of new ACS public use microsample (PUMS) data by the US Census Bureau.

The OFM Projection Model provided county-level population data required to produce synthetic estimates related to disability, English proficiency, dementia and long-term care service utilization. In addition, the OFM Projection Model was used directly to produce the following forecasts:

- Number of persons aged 60 or above,
- Number of persons aged 60 or above with income at or below the Federal Poverty Level,
- Number of persons aged 60 or above and minority,
- Number of persons aged 60 or above and American Indian/Alaska Native, and
- Number of minority persons aged 60 or above and at or below the Federal Poverty Level.

Prevalence Estimates Derived from ACS Data

The prevalence of persons meeting criteria related to disability and English proficiency was derived from PUMS data for Washington State from the 2009 ACS. We extracted ACS data for the population aged 18 and above, including persons residing in institutional group quarters. The following definitions were applied to the ACS source data in developing prevalence estimates:

- **Limited English proficiency** was defined to include persons who reported speaking English “not well” or “not at all.” *Item 14c*
- **Disability** prevalence was based on persons reporting ambulatory difficulty (walking or climbing stairs) or self-care difficulty (dressing or bathing). *Items 18b and 18c*
- **Cognitive impairment** was based on persons reporting difficulty concentrating, remembering or making decisions. *Item 18a*
- **Need for assistance with instrumental activities of daily living** (IADLs) was based on persons reporting difficulty doing errands alone such as visiting a doctor’s office or shopping. *Item 19*

We used a regression-based approach to develop ACS-based prevalence estimates for the county-level demographic cells available in the OFM Projection Model data file, and then aggregated estimates up to the county, AAA and statewide level for reporting purposes.

Dementia Prevalence Estimates

Age-specific estimates of dementia prevalence were developed from Plassman, et al.¹ The dementia forecasts represent estimates of the combined prevalence of Alzheimer’s disease and vascular dementia. Note that the Plassman study provides estimates of dementia only for persons aged 71-79, 80-89 and 90 and above. The Plassman study did not find statistically significant differences by gender after controlling for age. Therefore, our synthetic estimation process used the reported combined (male plus female) age-specific dementia rates. These rates were applied across all relevant county-level demographic cells in the OFM Projection Model data file. We then aggregated estimates up to the county, AAA and statewide level for reporting purposes.

Long-Term Care Service Utilization

Long-term care service utilization forecasts were developed through the following steps. First, Aging and Adult Services caseload counts for June 2010 were derived from the DSHS Research and Data Analysis Division’s Client Services Database (RDA CSDB). These counts were derived within detailed county demographic cells based on the residential and demographic information available in CSDB. Counts were derived for the following service groups:

¹ Plassman, et al. Prevalence of Dementia in the United States: The Aging, Demographics, and Memory Study. *Neuroepidemiology* 2007; 29:125-132. Age-specific dementia prevalence estimates were derived from Table 2.

- **In-home services** including services provided through the COPES waiver and Medicaid Personal Care;
- **Community residential services** including adult family home, adult residential care and assisted living facilities; and
- **Skilled nursing facilities.**

It is important to note that these counts reflect only services paid for by Medicaid through the Aging and Adult Services component of the DSHS Aging and Disability Services Administration. Similar services paid for through other fund sources (e.g., private pay or Medicare) are not included in these forecasts. Personal care, community residential and ICF/MR services paid for through the Division of Developmental Disabilities are also excluded from these forecasts.

In the next step, caseload counts for June 2010 derived from the RDA CSDB were compared to the June 2010 Caseload Forecast Council (CFC) estimates for the same service categories. Although the caseload counts were found to be quite similar, a global ratio adjustment was performed to ensure that the statewide count of clients by service modality for June 2010 exactly matched the available CFC estimate.

Finally, the June 2010 caseload estimates (by county demographic cell) were combined with the OFM Projection Model population estimates (by county demographic cell) to produce service utilization estimates, benchmarked to June 2010. These utilization rates were then applied, by county demographic cell, to the OFM Projection Model population estimates through 2020 and aggregated up to the county, AAA and statewide level for reporting purposes.

These estimates are best interpreted as a forecast of monthly caseload counts for June of the year reported. The forecasts assume that future caseload growth is driven by changes in the county's demographic composition (e.g., growth in the population of aged persons), while holding constant the propensity to use long-term care services at the level observed in June 2010 within the detailed demographic cells.

Income relative to Elder Economic Security Standard™ Index

Estimates of the number of persons aged 60 or above and at or below Elder Economic Security Standard™ Index (EESSI) are based on the county-specific EESSI standards for calendar year 2010 for a single elder person who owns their own home without a mortgage.²

² Gerontology Institute, University of Massachusetts Boston and Wider Opportunities for Women, 2011. The Elder Economic Security Standard™ Index for Washington.

Selected Population and Aging Service Utilization Forecast, Washington State

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of persons aged 60 or above	1,199,843	1,243,727	1,291,273	1,342,906	1,394,212	1,449,388	1,502,610	1,556,565	1,612,143	1,663,502	1,719,184
Number of persons aged 60 or above and at or below 100% FPL	89,593	91,093	90,324	85,749	85,111	87,401	89,607	91,735	93,198	93,665	93,856
Number of persons aged 60 or above and at or below EESSI	216,440	222,170	226,986	229,348	234,730	242,902	250,829	259,269	267,537	274,637	282,117
Number of persons aged 60 or above and minority	149,780	159,526	169,910	181,138	192,604	204,851	217,832	231,041	244,759	258,086	272,363
Number of persons aged 60 or above and American Indian/Alaska Native	12,134	12,769	13,452	14,187	14,929	15,716	16,561	17,403	18,265	19,084	19,959
Number of persons aged 60 or above, American Indian/Alaska Native, and Disabled (ACS 18b or 18c)	2,825	2,965	3,119	3,276	3,442	3,626	3,815	4,011	4,216	4,413	4,623
Number of persons aged 60 or above and at or below 100% FPL and minority	21,464	22,350	22,700	22,064	22,391	23,466	24,606	25,786	26,736	27,385	27,965
Number of persons aged 60 or above with limited English proficiency	44,632	46,723	48,992	51,226	53,715	56,548	59,442	62,488	65,583	68,505	71,632
Number of persons aged 60 or above and Disabled (ACS 18b or 18c)	254,222	261,110	268,682	276,604	284,962	294,541	303,874	314,189	325,257	335,701	347,135
Number of persons aged 18 or above and Disabled (ACS 18b or 18c)	468,619	476,030	482,912	487,450	494,571	504,213	513,523	523,418	533,448	543,053	553,296
Number of persons aged 60 or above with cognitive impairment (ACS 18a)	112,902	115,695	118,296	120,683	123,590	127,272	130,895	134,768	138,972	142,873	147,163
Number of persons aged 18 or above with cognitive impairment (ACS 18a)	307,323	309,881	311,003	309,076	310,311	313,915	317,541	321,164	324,529	327,604	330,600
Number of persons aged 60 or above with IADL (ACS 19)	162,717	166,583	170,409	174,335	178,673	183,878	188,982	194,790	201,118	207,105	213,794
Number of persons aged 18 or above with IADL (ACS 19)	306,079	309,912	312,703	313,420	316,530	321,741	326,879	332,470	338,082	343,372	349,030
Number of persons aged 70 or above with dementia	79,628	80,878	82,178	83,696	85,208	87,044	88,877	91,255	94,061	96,854	100,112
Number of persons using SNF services, based on June 2010 CFC utilization calibration	10,518	10,713	10,934	11,169	11,399	11,661	11,915	12,203	12,519	12,829	13,181
Number of persons using in-home services, based on June 2010 CFC utilization calibration	33,643	34,502	35,490	36,552	37,618	38,755	39,900	41,194	42,563	43,919	45,360
Number of persons using community residential services, based on June 2010 CFC utilization calibration	11,382	11,592	11,829	12,075	12,315	12,587	12,853	13,151	13,476	13,799	14,164