

Alzheimer's Working Group Meeting

Projections of Alzheimer's Dementia in Washington State



David Mancuso, PhD

Director, DSHS Research and Data Analysis
Division

Irina Sharkova, PhD

Sr. Research Manager – Geography, DSHS
Research and Data Analysis Division

November 12, 2014

Approaches to Estimation

Data on disease prevalence

- Prevalence estimates are derived from clinical studies or population surveys
- Prevalence rates by age and gender are calculated from the study population, then applied to state population estimates

Prevalence rates of Alzheimer's Dementia (AD)

- From two major ongoing studies of dementia:
 - Aging, Demographics, and Memory Study (ADAMS) - Plassman et al (2007)
 - Chicago Health and Aging Project (CHAT) - Hebert et al (2003; 2013)
- National survey
 - American Community Survey (ACS) by US Census Bureau

Differences in AD prevalence rates due to:

- AD diagnostic differences (include or exclude mild cognitive impairment and non-AD dementias)
- Whether a clinician participated in the study or the results were self-reported only

Forecasting Approach

Data on future population by age

- Washington State Office of Financial Management, Forecasting and Research Division: Forecast of the State Population by Age and Sex, 2010-2040, November 2013

Models

- **Extrapolation** – Multiply each population subgroup in the population forecast by their AD prevalence rate, prevalence rates do not change with time (Plassman, 2007)
- **Macro-cell simulation** – Imitates what happens in a real population using AD incidence rate and AD mortality rate by age to calculate people with and without AD at the base year, then “aging” them by 1 year, adding new AD cases, subtracting persons who died from AD and non-AD causes, and repeating the process for every year of the forecast (Hebert 2013)
- **Our approach** – Extrapolations using prevalence rates from three sources, one model relies on prevalence rates from a macro-cell simulation model

Projections for Washington in 2040

3 Models

Persons with . . .

Alzheimer's Dementia

(Hebert, 2013)

Age 65 years and older

270,000

Serious Cognitive Difficulty

(2013 ACS)

65 years and older

233,000

Any Dementia

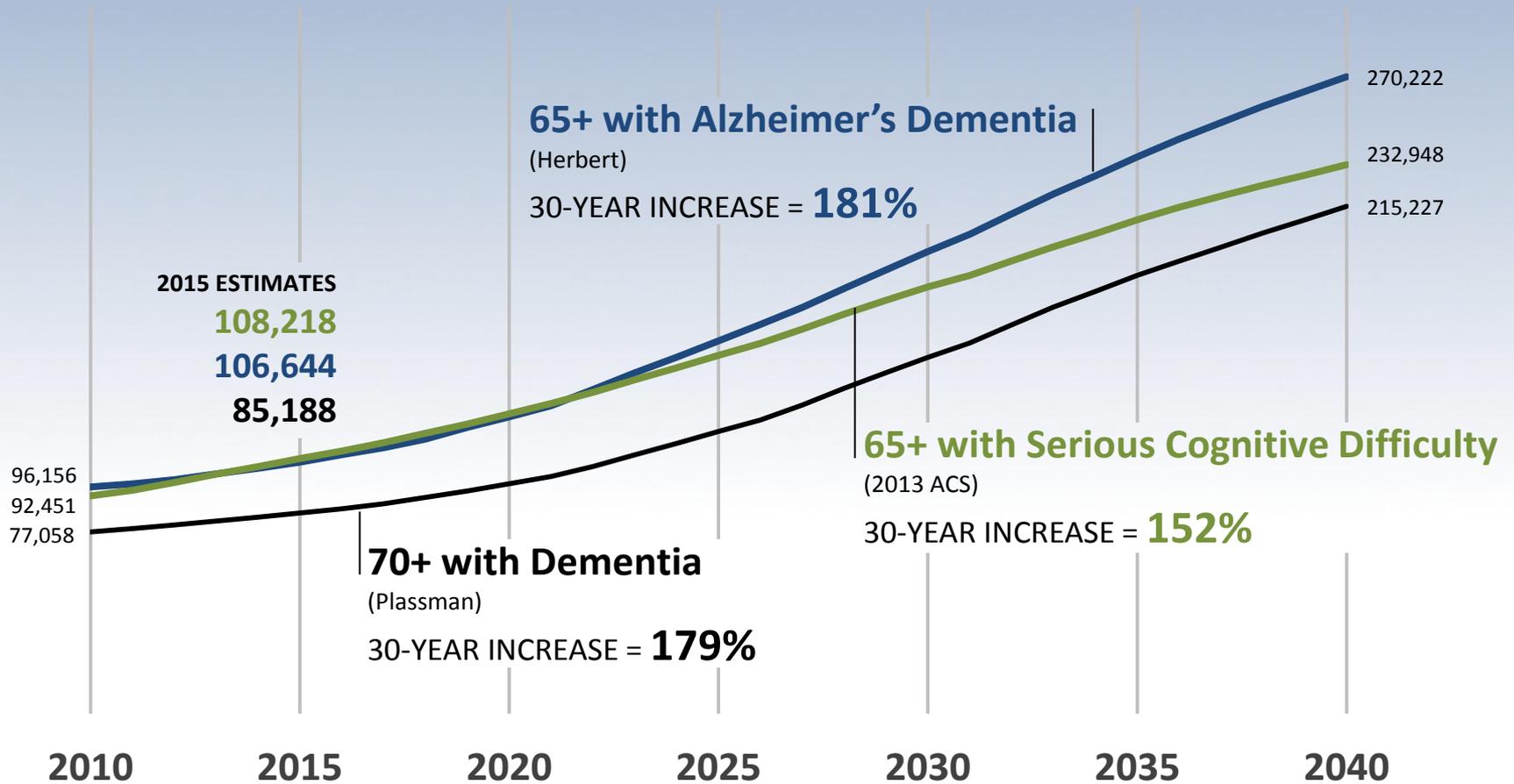
(Plassman, 2007)

70 years and older

215,000

Projections of Alzheimer's Dementia in Washington State

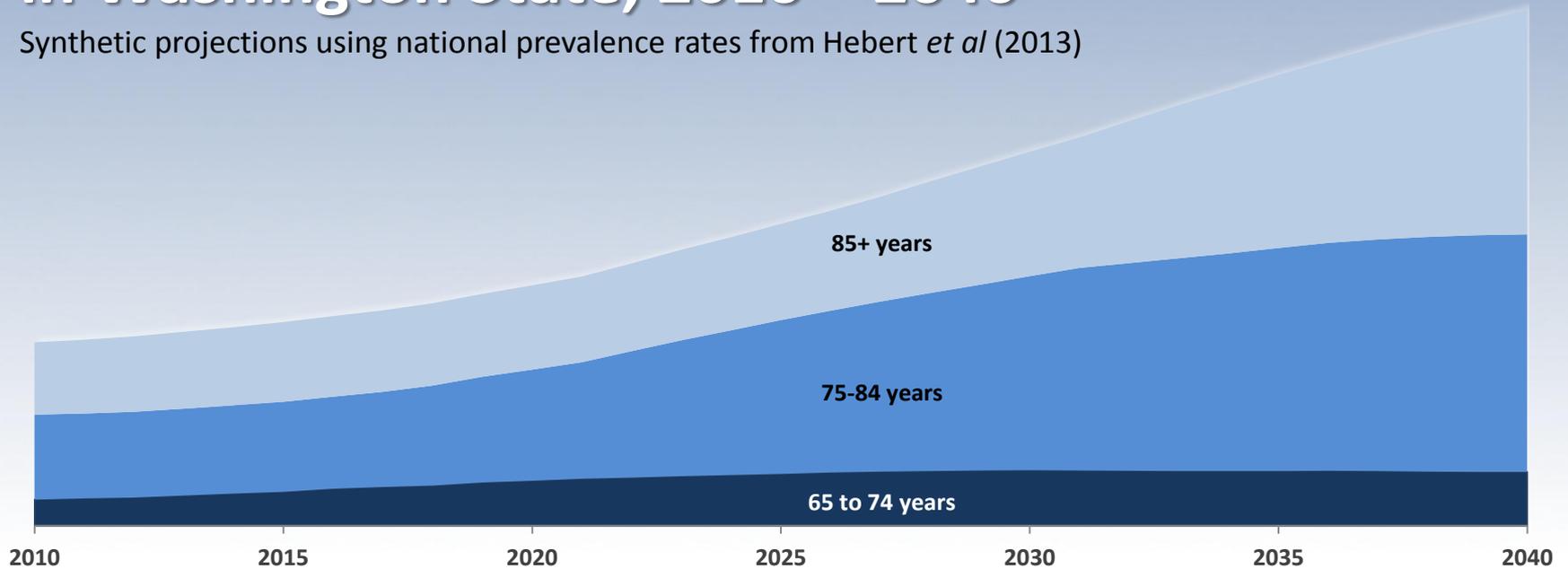
Transforming Lives



Projections of Alzheimer's Dementia in Washington State, 2010 – 2040

Transforming Lives

Synthetic projections using national prevalence rates from Hebert *et al* (2013)



| | 2010 | | 2020 | | 2030 | | 2040 | |
|----------------------|---------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | NUMBER | PREVALENCE | NUMBER | PREVALENCE | NUMBER | PREVALENCE | NUMBER | PREVALENCE |
| 65 -74 years | 13,717 | 3.0% | 23,600 | 3.1% | 29,180 | 3.3% | 28,187 | 3.4% |
| 75 - 84 years | 44,561 | 17.6% | 58,251 | 16.7% | 101,581 | 17.2% | 124,500 | 18.0% |
| 85+ years | 37,879 | 32.3% | 44,121 | 32.2% | 65,255 | 32.9% | 117,535 | 34.6% |
| Total 65+ | 96,156 | 11.6% | 125,973 | 10.1% | 196,015 | 11.7% | 270,222 | 14.5% |

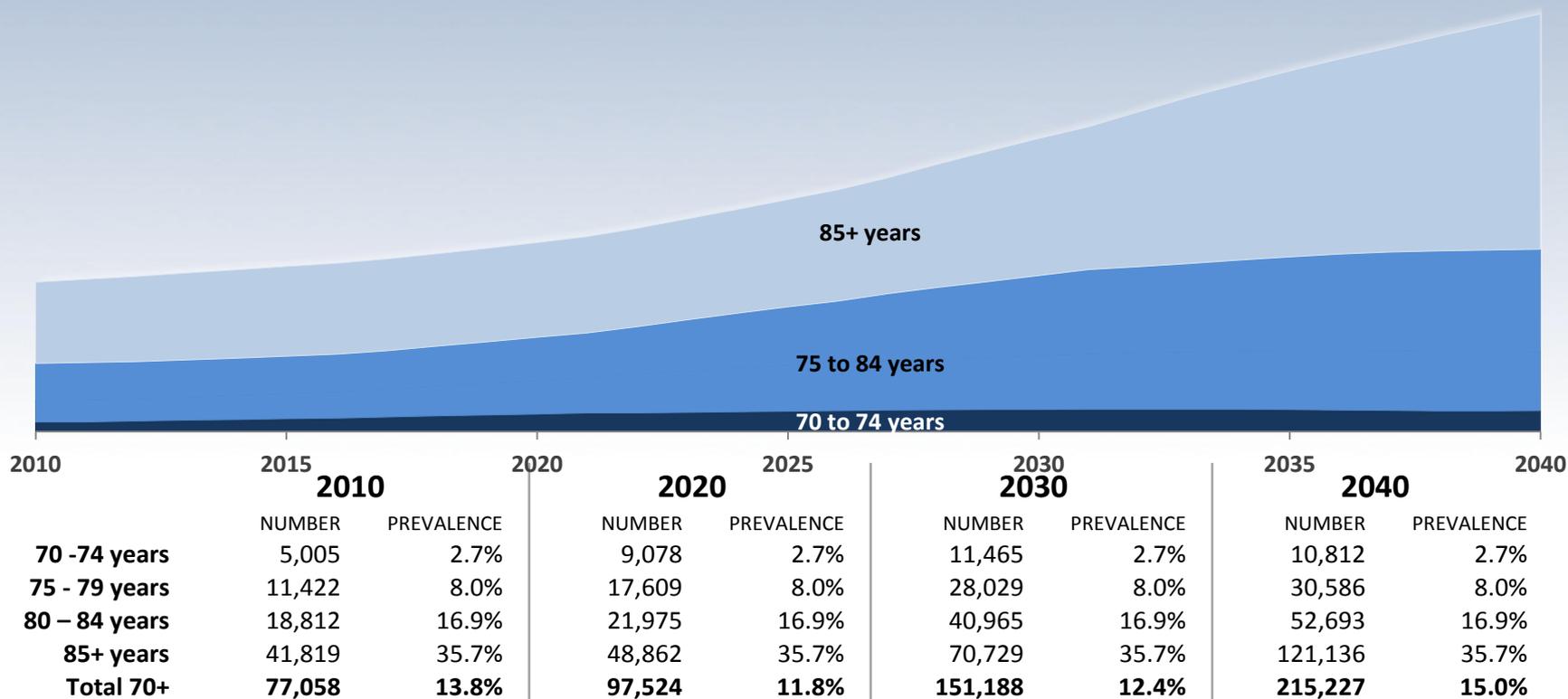
DATA SOURCES

Total Population 65 and Over, by Age: Washington State Office of Financial Management, Forecasting and Research Division. Forecast of the State Population by Age and Sex: 2010-2040. Nov. 2013. **National Prevalence of Alzheimer's Dementia for Persons 65+, by Age:** Hebert L.E., Weuve J., Scherr P.A., and D.A. Evans. Alzheimer disease in the United States (2010–2050) estimated using the 2010 census. *Neurology* May 7, 2013 80:1778-1783.

Persons with Any Dementia in Washington, 2010 – 2040

Transforming Lives

Synthetic projections using national prevalence rates from Plassman *et al* (2007)



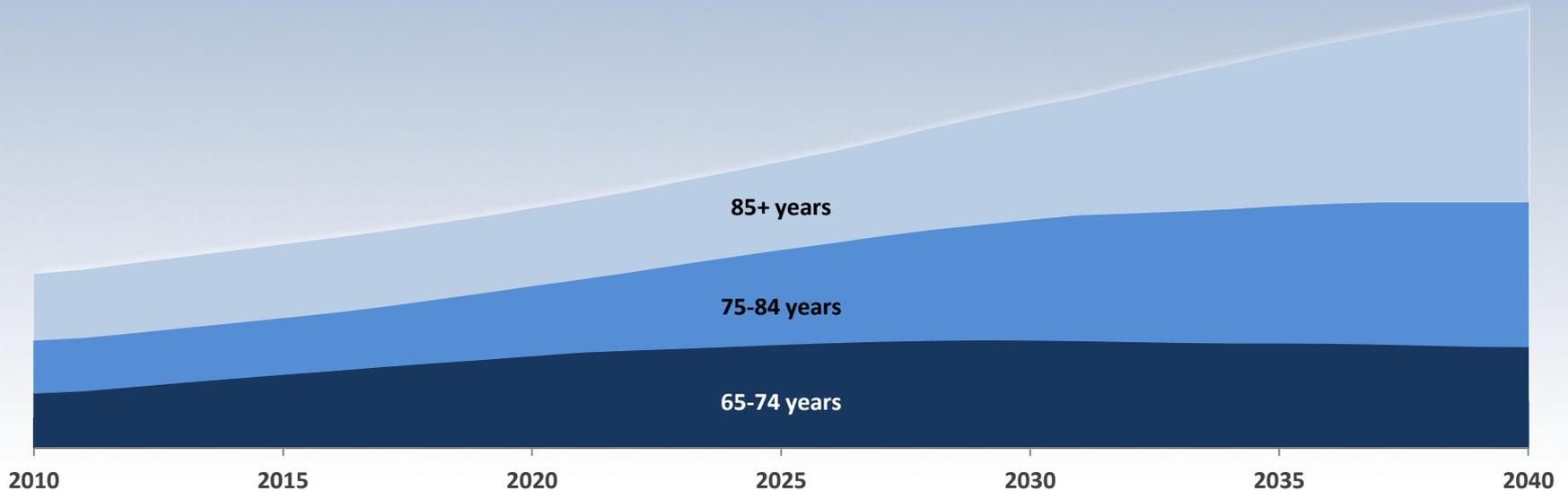
DATA SOURCES

Total Population 70 and Over, by Age: Washington State Office of Financial Management, Forecasting and Research Division. Forecast of the State Population by Age and Sex: 2010-2040. Nov. 2013. **National Prevalence of Any Dementia for Persons 70+, by Age:** DSHS ADSA Age Wave Forecasts, 2010-2020; calculated from B.L. Plassman, K.M. Langa, G.G. Fisher et.al. Prevalence of Dementia in the United States: The Aging, Demographics, and Memory Study. *Neuroepidemiology* 2007; 29:125-132.

Persons with Serious Cognitive Difficulties in Washington, 2010 – 2040

Transforming Lives

Synthetic projections using Washington state prevalence rates from the 2013 American Community Survey



| | 2010 | | 2020 | | 2030 | | 2040 | |
|----------------------|---------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | NUMBER | PREVALENCE | NUMBER | PREVALENCE | NUMBER | PREVALENCE | NUMBER | PREVALENCE |
| 65 - 74 years | 29,223 | 6.4% | 49,043 | 6.4% | 57,439 | 6.5% | 53,885 | 6.5% |
| 75 - 84 years | 27,830 | 11.0% | 36,827 | 10.6% | 63,796 | 10.8% | 76,526 | 11.1% |
| 85+ years | 35,398 | 30.2% | 41,360 | 30.2% | 59,869 | 30.2% | 102,537 | 30.2% |
| Total 65+ | 92,451 | 11.2% | 127,230 | 10.2% | 181,104 | 10.8% | 232,948 | 12.5% |

DATA SOURCES

Total Population 65 and Over, by Age: Washington State Office of Financial Management, Forecasting and Research Division. Forecast of the State Population by Age and Sex: 2010-2040. Nov. 2013. **Washington State Prevalence of Serious Cognitive Difficulty for Persons 65+, by Age:** US Census Bureau. 2013 American Community Survey 1-Year PUMS files. Online at http://www.census.gov/acs/www/data_documentation/data_ferrett_for_pums/, accessed 11-03-2014.

Transforming
Lives



Microsoft/Free Domain

Questions?