

Healthy Aging: The Key to Our Future

Marie S. Bonavoglia, Ph.D., PA-C

Marywood University

Disclosures

- No relevant commercial relationships to disclose.





Objectives

At the end of this session, participants should be able to:

- Recognize the increase in the number of elderly citizens in the U.S. from the 20th century to the present
- Recognize the importance of allowing elders to age-in-place with respect to personal choice
- Recognize the importance of allowing elders to age-in-place with respect to financial savings for payers

Quest for youth



Aging

increases frailty

increases susceptibility to disease

decreases resilience or ability to bounce back

lowers the threshold of stress that our bodies can withstand





What is the greatest risk factor for the development of disease?

- a. smoking
- b. sedentary lifestyle
- c. aging
- d. unhealthy diet



What is the greatest risk factor for the development of disease?

- a. smoking
- b. sedentary lifestyle
- c. aging**
- d. unhealthy diet

Why do we age differently?

- “young” 75-year-old vs “old” 75-year-old”
 - routines
 - regular exercise
 - environments
 - healthy behaviors



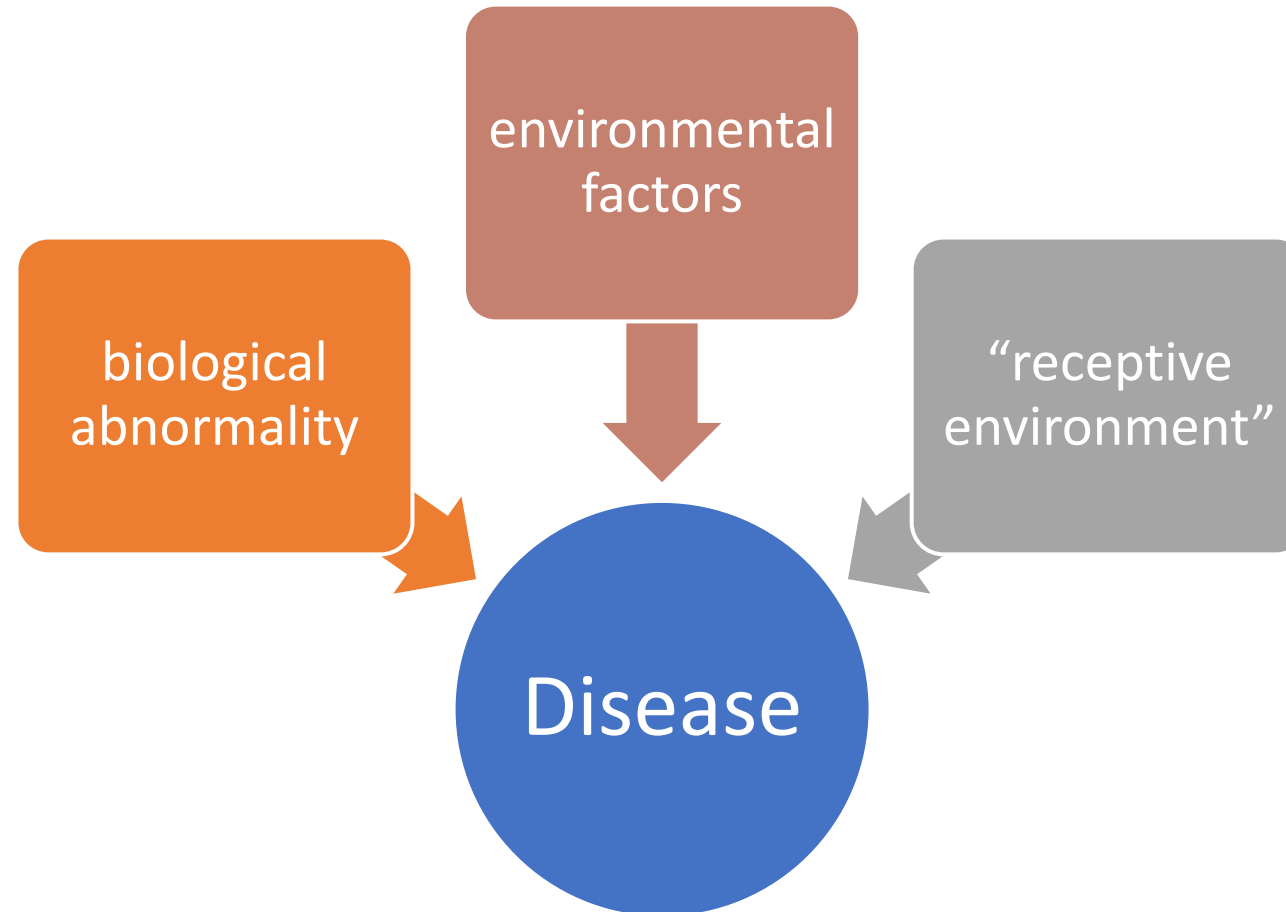
Geroscience

- “an interdisciplinary field that aims to understand the relationship between aging and age-related diseases and disabilities” (Serra, 2016)
- attempts to understand disease as we age
- WHY is age a risk factor for disease?



(The Emergence of Geroscience as an Interdisciplinary Approach to the Enhancement of Health Span and Life Span, Serra, 2016)

Development of disease



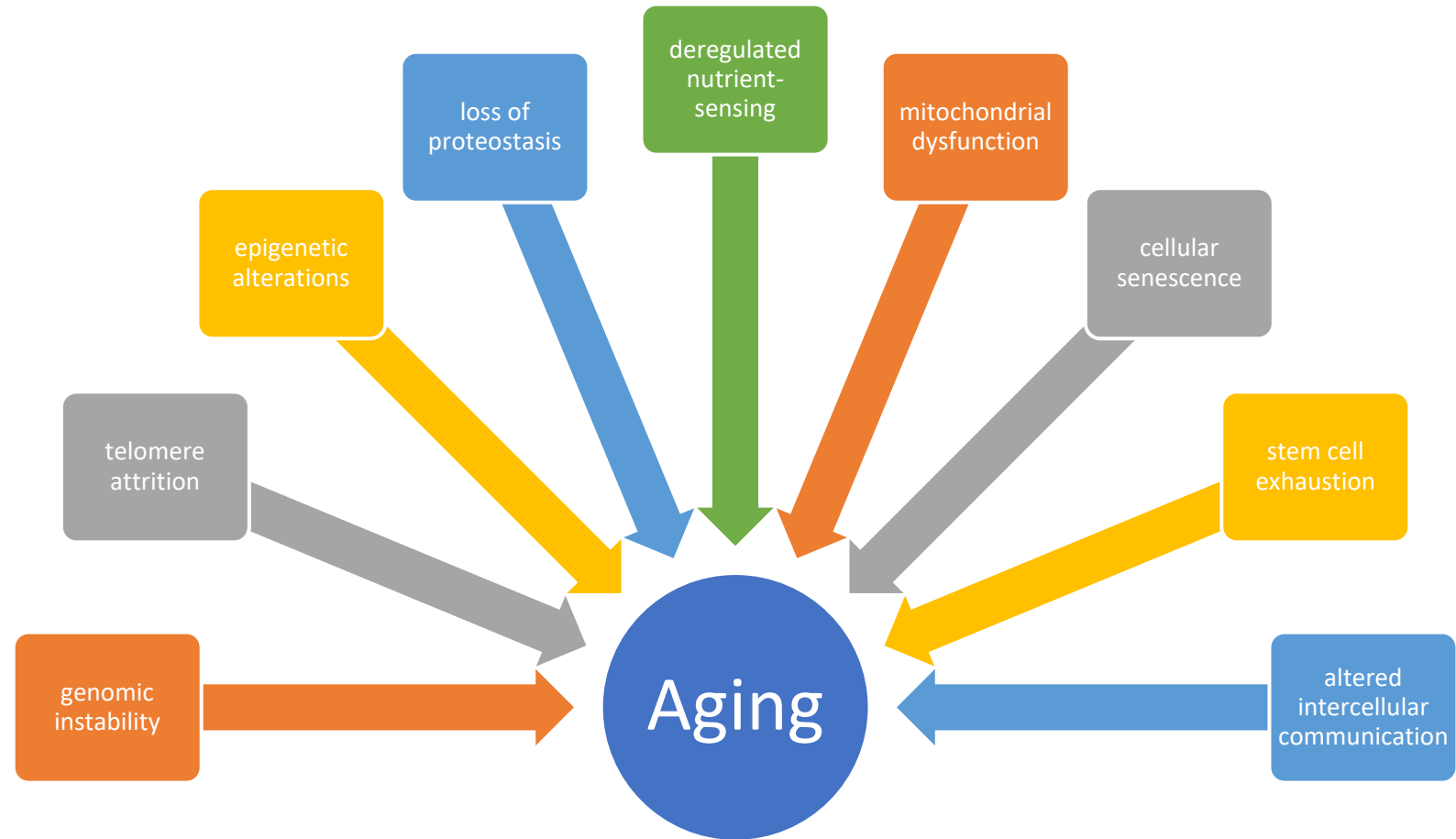
(Krtolica & Campisi, 2003)

How old are you?

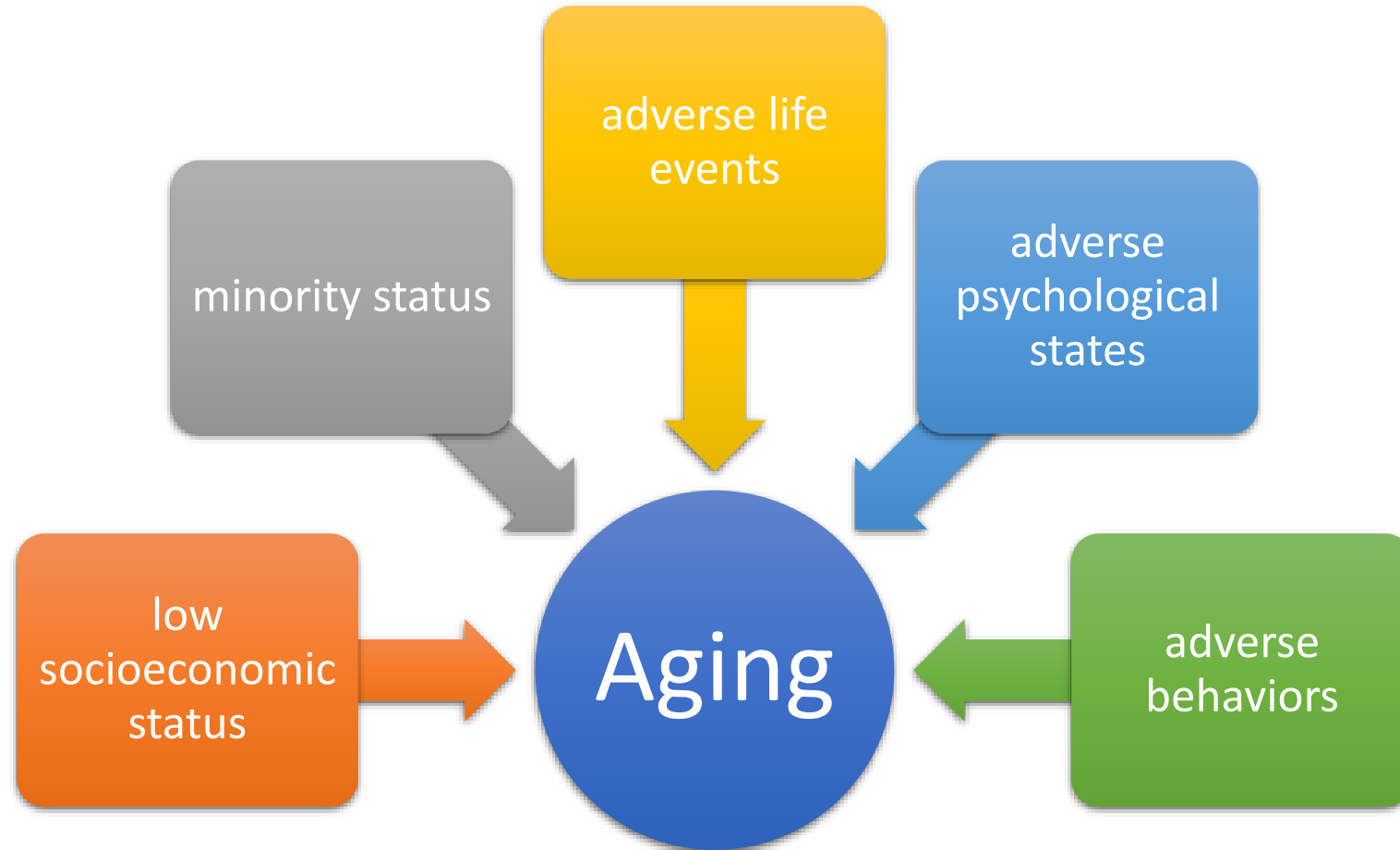
Chronological age \neq Biological age



Biological Hallmarks of Aging



Social Hallmarks of Aging





Which of the following are biological hallmarks of aging?

- a. cellular senescence
- b. altered intercellular communication
- c. mitochondrial dysfunction
- d. all of the above



Which of the following are biological hallmarks of aging?

- a. cellular senescence
- b. altered intercellular communication
- c. mitochondrial dysfunction
- d. all of the above**

Geroscience

- attempts to prevent or delay the onset of disease
- attempts to be proactive with disease or prevent disability rather than be reactive



Aging

- Greatest risk factor for the development of disease
- Why does pathology occur as we age?
- Why do most disease/disability occur later in life?



How long do we want to live?

Quality

- Fewer years
- Perhaps no suffering?
- Independence

Quantity

- More years
- Disease/disability in later years?
- Dependence



Elders do contribute



ELDERS VS TEENS IN THE WORKFORCE (2015)

8.4 
elders (in millions)

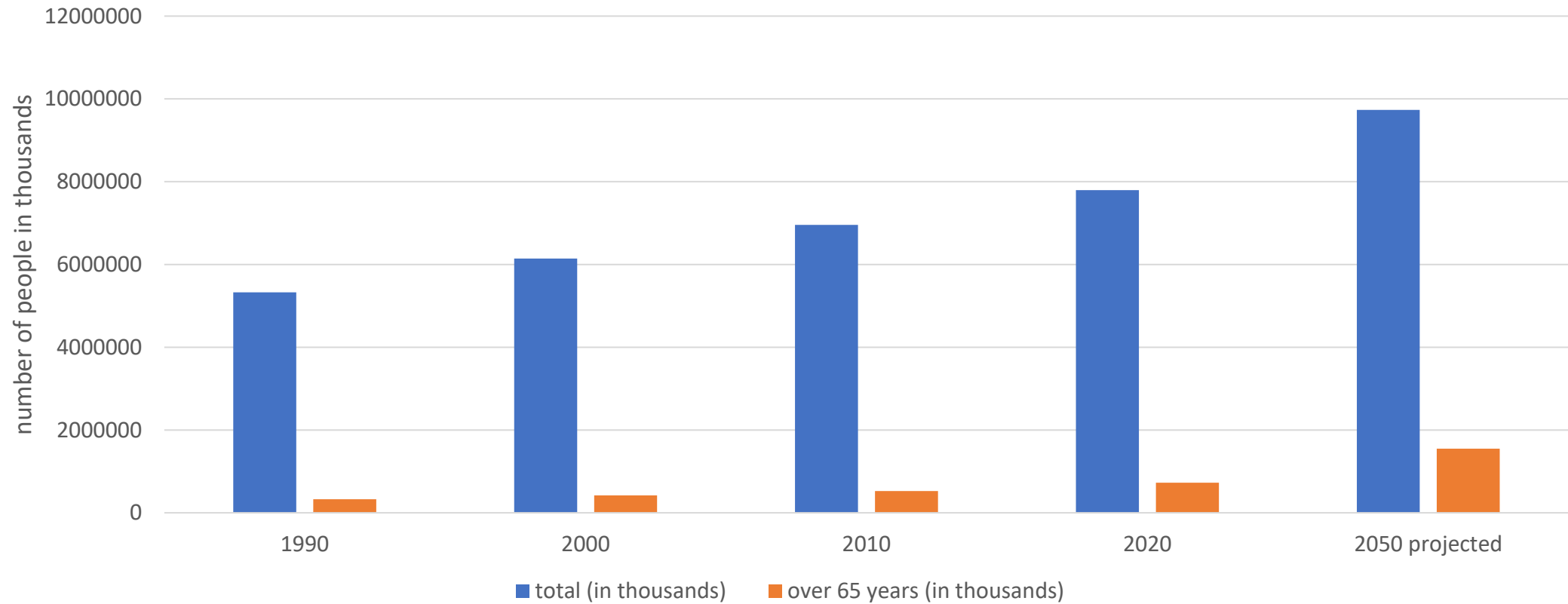
4.7 
teens (in millions)

Why is the number of elders increasing?

- Improved healthcare
- Advances in medical research
- Implementation of sanitation

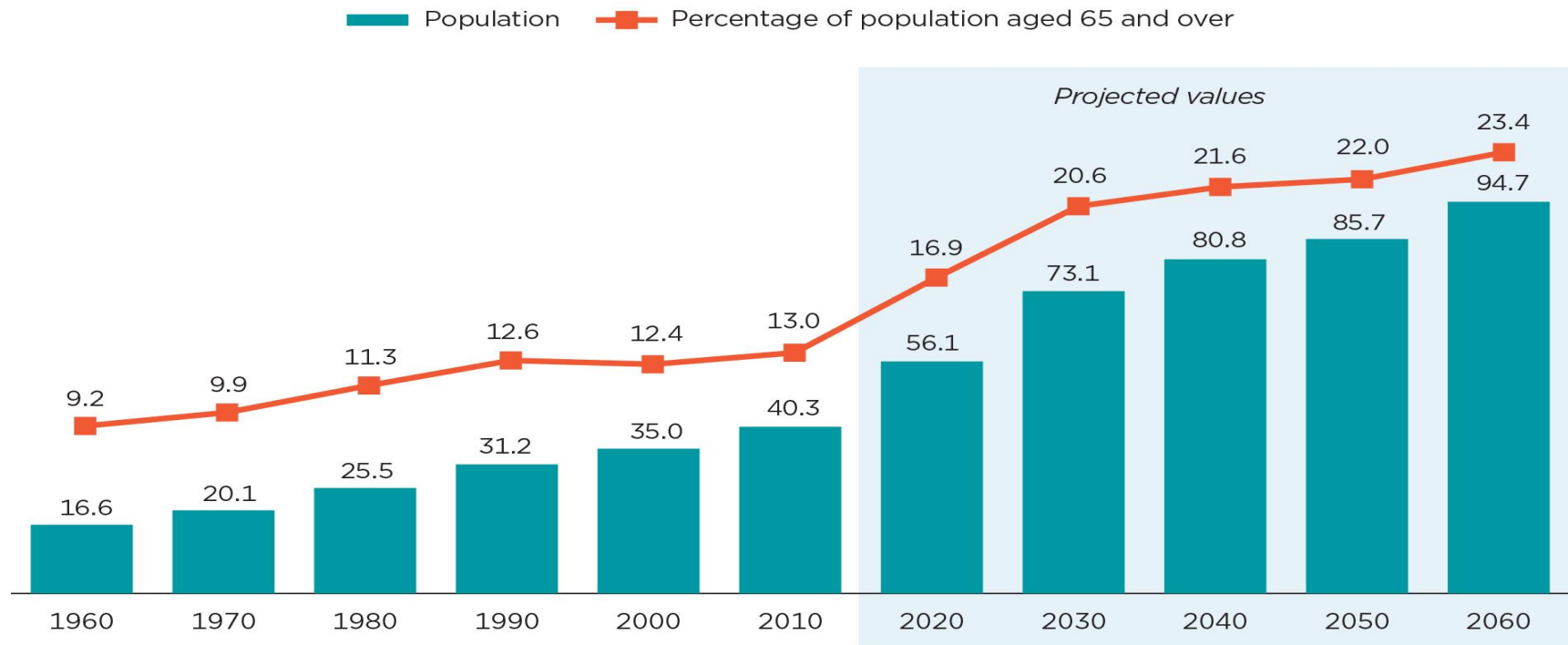


Global population



US Aging

Figure 1.
Older Population Aged 65 and Over
(In millions)



Source: U.S. Census Bureau, 1960–2010 decennial censuses, 2017 National Population Projections.

In 2020, there were 727 million persons aged 65 years or over globally. How many are projected in 2050?

- a. 900 million
- b. 1.2 billion
- c. 1.5 billion
- d. 3 billion

In 2020, there were 727 million persons aged 65 years or over globally. How many are projected in 2050?

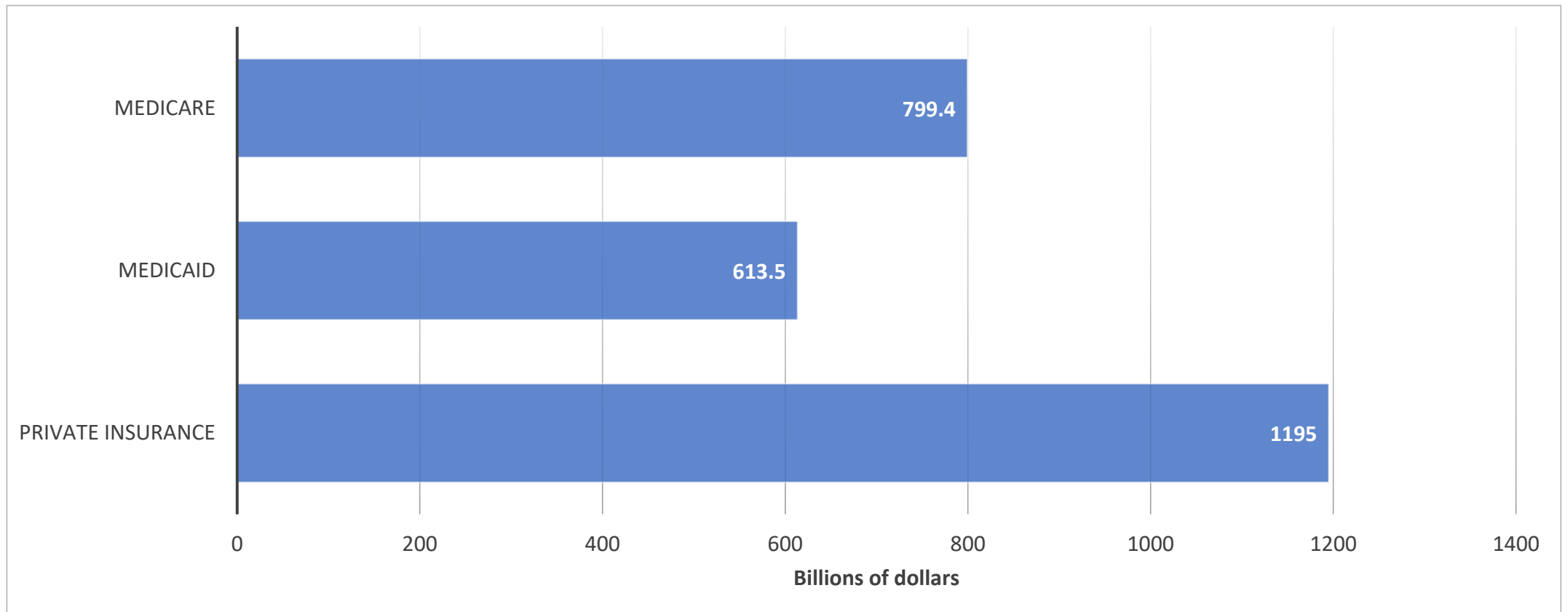
- a. 900 million
- b. 1.2 billion
- c. 1.5 billion**
- d. 3 billion



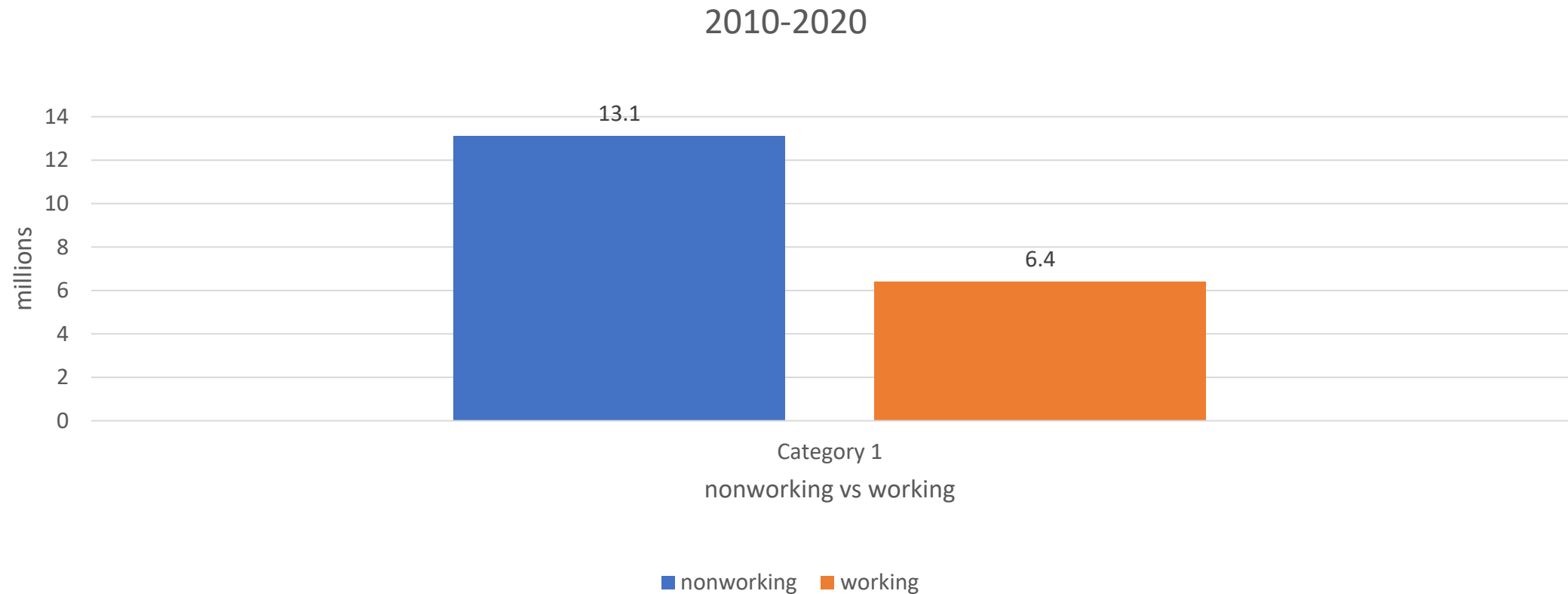
Baby Boomers

- 1946-1964
- 78 million births in the U.S.
- 73 million alive today
- oldest turned 65 years in 2011
- youngest will turn 65 in 2029

Increase in U.S. Healthcare Spending in 2019

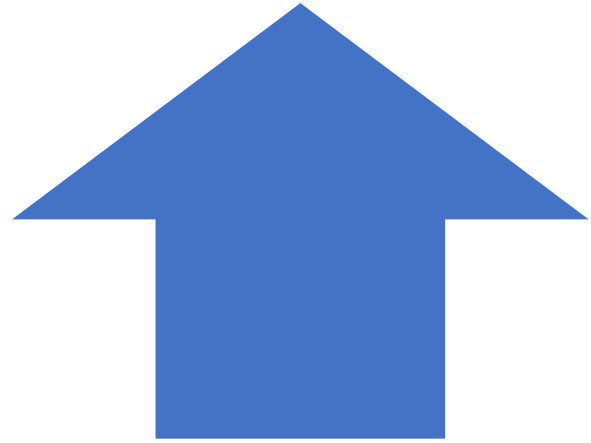


Increase in Nonworking Age vs Working Age



(census.gov)

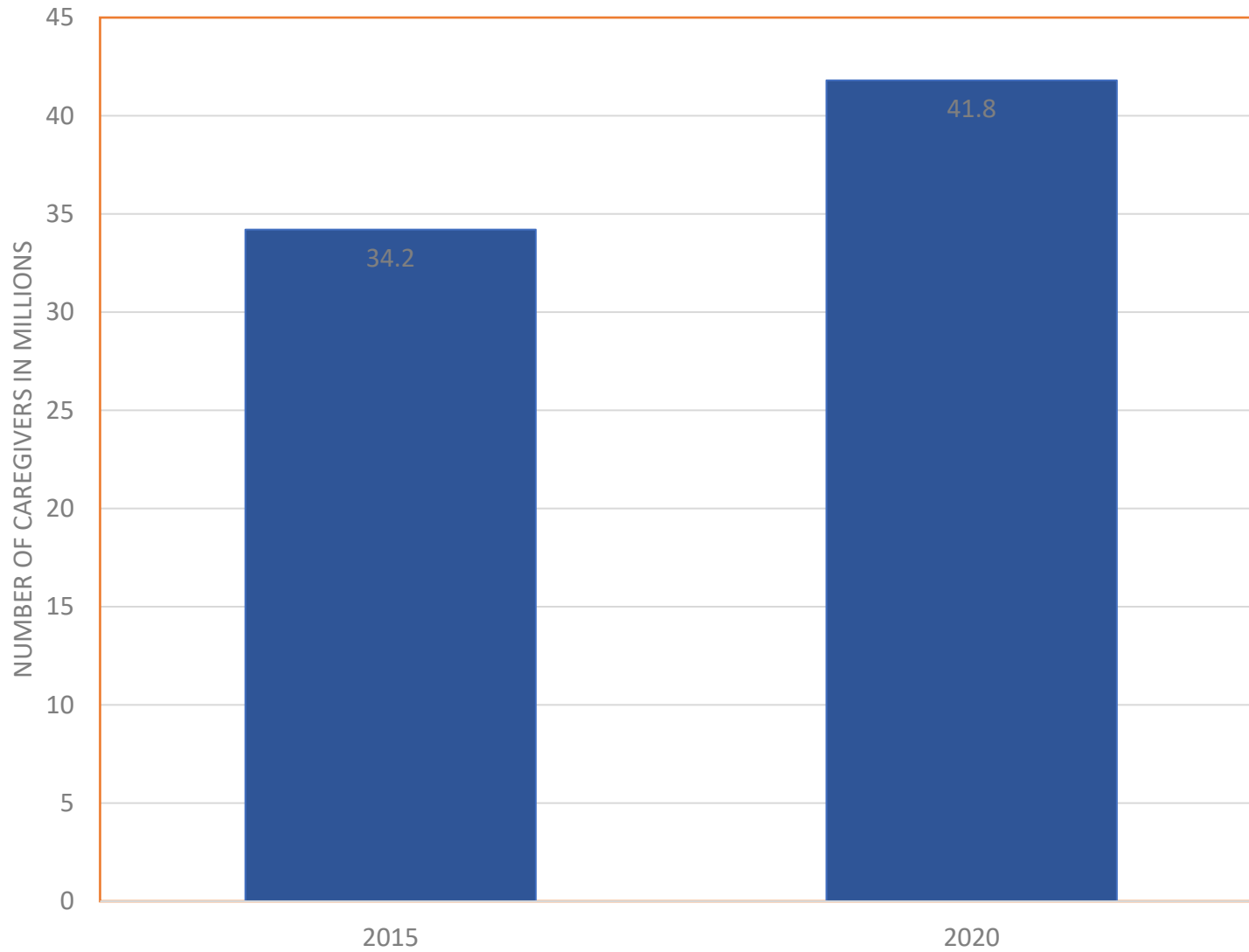
Caregivers



demand for caregivers



supply of caregivers

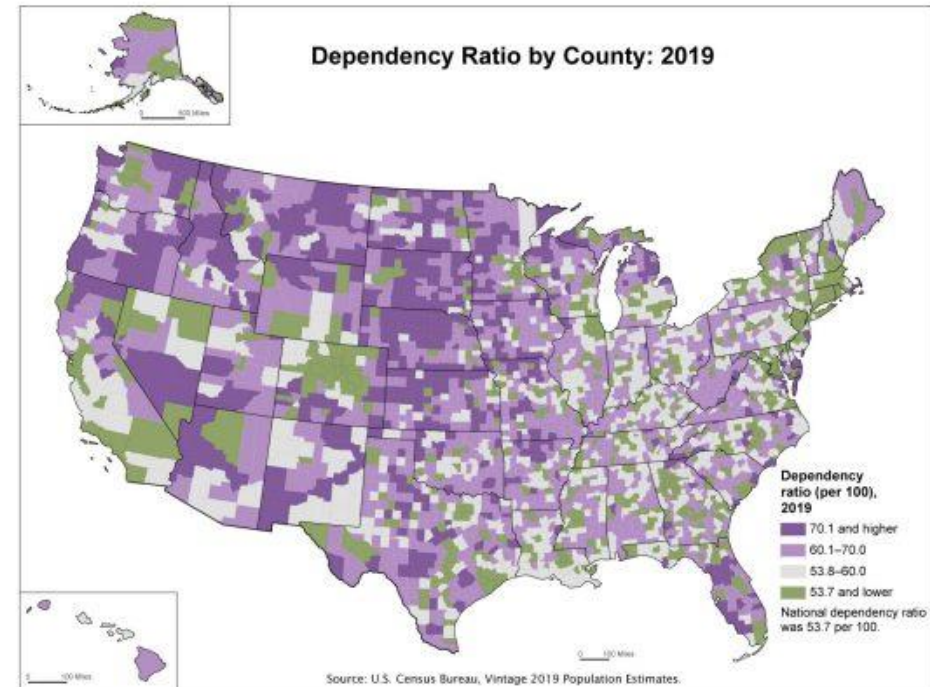
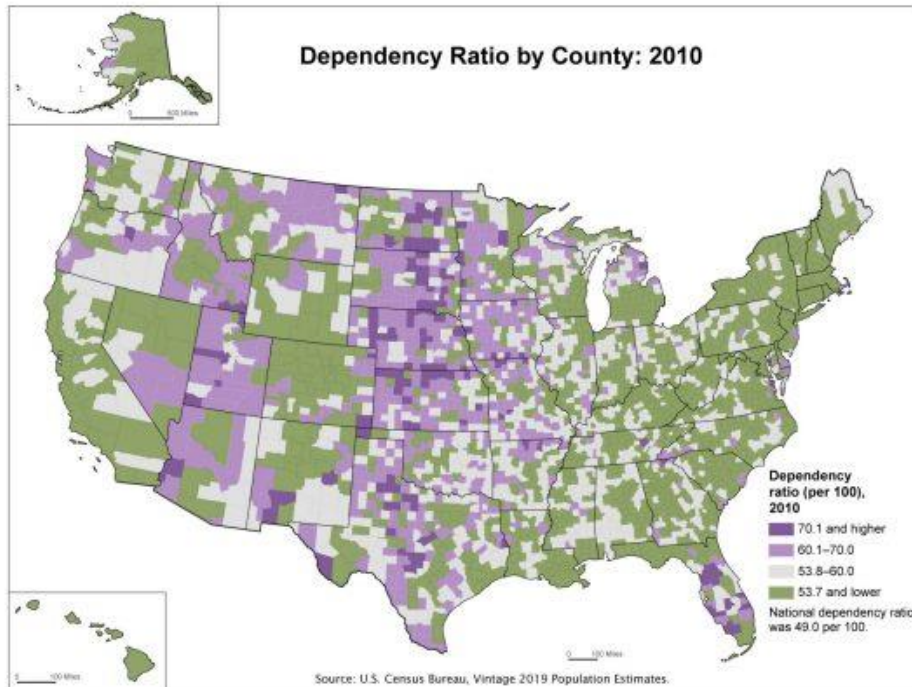


Number of
unpaid
caregivers
in the US

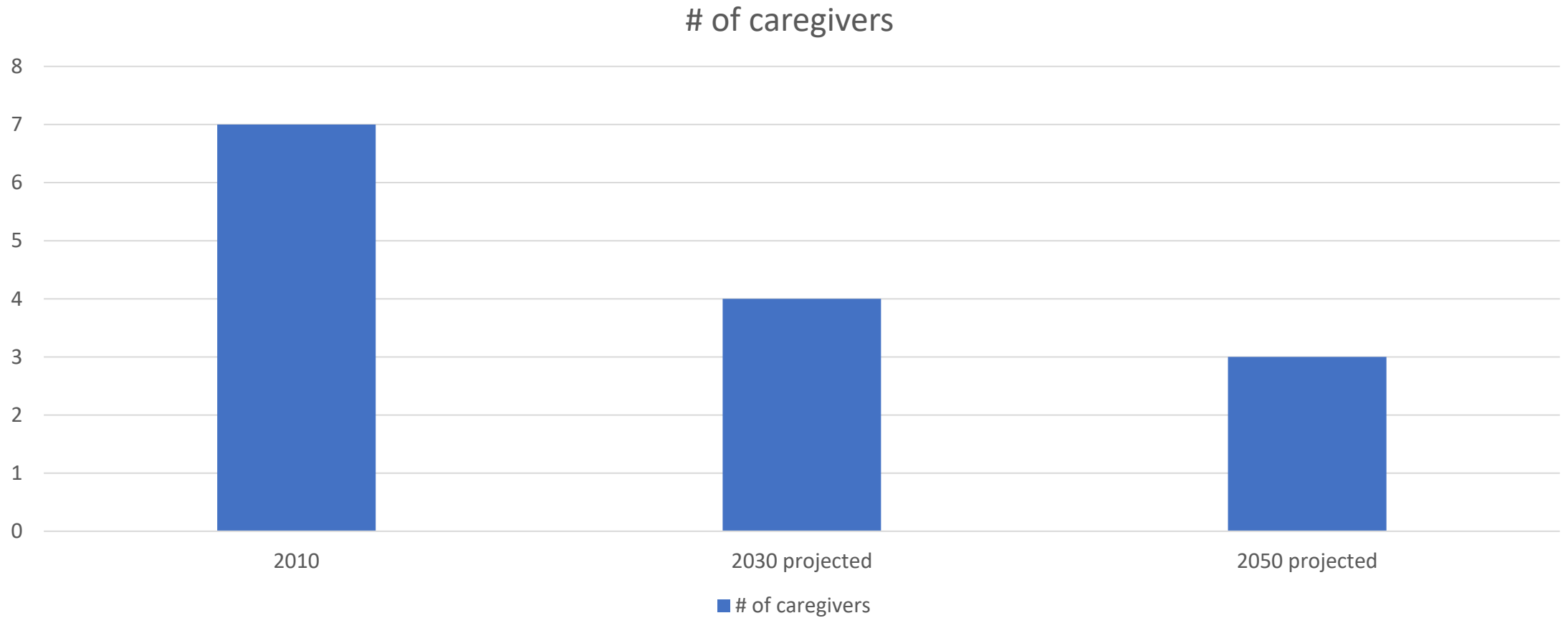
Increasing Dependency

Dependency ratio 2010: 49 per 100

Dependency ratio 2019: 53.7 per 100



Caregiver support ratio



Aging of what generation is causing the “silver tsunami”?

- a. the millennials
- b. the baby boomers
- c. generation x
- d. silent generation

Aging of what generation is causing the “silver tsunami”?

- a. the millennials
- b. the baby boomers**
- c. generation x
- d. silent generation



WHO: The Global Strategy & Action Plan on Aging & Health

- Healthy Aging
 - “process of developing and maintaining the functional ability that enables well-being in older age” (WHO, 2016)
- Functional Ability
 - the ability to do what one wants to do including:
 - meet their basic needs
 - learn, grow and make decisions
 - be mobile
 - build and maintain relationships
 - contribute to society


Society must provide

- help in the home
- adaptations to the existing home if needed
- healthcare/medications
 - in the home
 - long term care facility
- socialization
- food
- financial means to support themselves



Age-in-Place

- “to continue to live in one's home safely, independently, and comfortably in a familiar environment” (Merriam-Webster)
- possible solution to public health issue
- favored by the elderly
 - improves quality of life
- encourages good physical health
 - increased use of preventative services
- strengthen community infrastructure



Age-in-Place

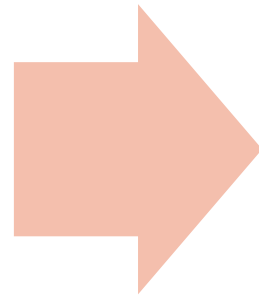
- tremendous financial savings compared to living in any type of facility
 - waivers can be awarded to many elders compared to financing one elder in a nursing home
- improves quality of life without any type of compliance
- make accommodations to the home to fit the elder's changing needs

Age-in-Place

- Waivers have begun to be put in place
 - assistance in the home
 - assistance within the community
- Encourage Medicaid to direct funds to adapting homes
- The projected estimate for basic safety adaptations is \$2,579
 - includes grab bars, railings, shower seats, ramps

How much will it cost?

\$1 put into
home
renovations



\$1.29 saved
in future
medical
costs

Admission to long term care facility

- Last resort
- Associated with a two fold increase in mortality vs living at home
- Increased depression
- Decreased cognition



(Aneshensel, C.S., Pearlin, L.I., Levy-Storms, L., & Schuler, R.H. ,
2000)

For every \$1 put into home renovations for the elderly, how much will be saved in healthcare costs?

- a. \$0.50
- b. \$1.29
- c. \$1.79
- d. \$2.00

For every \$1 put into home renovations for the elderly, how much will be saved in healthcare costs?


- a. \$0.50
- b. \$1.29**
- c. \$1.79
- d. \$2.00



Falls

- CDC estimated that 1 in 4 ppl over the age of 65 fall in their homes each year
- the direct cost of fall related injuries is \$50 billion annually
- estimate for a hospitalization due to a fall is \$30,000

home renovations



reduced number of
falls



Aging ready homes

- step free entry way
- bedroom on the first floor
- full bathroom on the first floor
- at least one bathroom accessibility feature
 - handrails
 - grab bars
 - elevated toilet

CAPABLE program

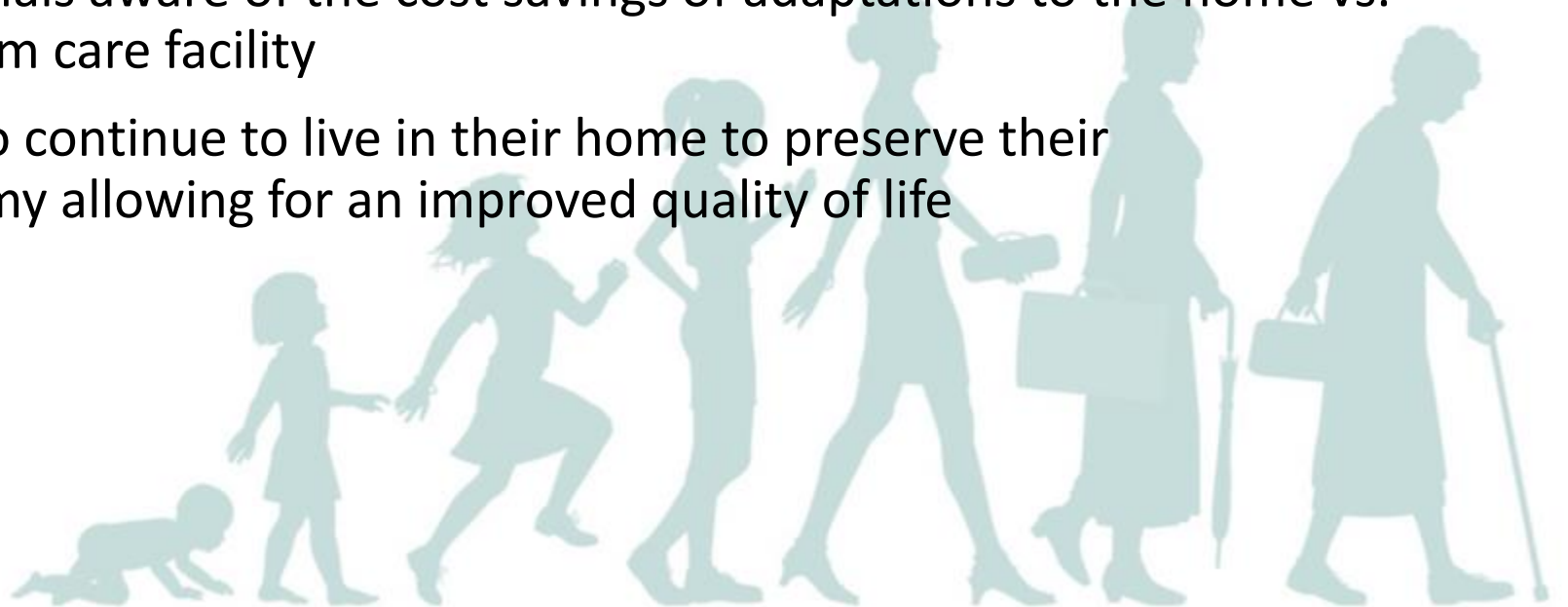
- Community Aging in Place, Advancing Better Living for Elders program
- “Determine whether the program would save Medicaid more money than it costs to provide the interventions
- 5-month program to reduce the health effects of impaired physical function in low-income older adults by addressing individual capacity and the home environment.
- used interprofessional team (occupational therapist, registered nurse, handyman) to help older adults attain self-identified functional goals”

CAPABLE program

- “average Medicaid spending per participant was \$867 less per month than that of their matched comparison counterparts
- observation period average 17 months
- largest differential reduction in expenditures were for inpatient care and long-term services and supports
- reduced Medicaid spending could pay for the cost of the program and provide further Medicaid program savings due to averted services use”

Allowing elders to age-in-place

- Provide them with the necessary adaptive devices and accommodations to the home to allow them to age-in-place safely
- Continue to petition Medicare/Medicaid to fund non-medical amenities that will help pay for the necessary adaptations
 - Make government officials aware of the cost savings of adaptations to the home vs. admission to a long-term care facility
- Respect the elders desire to continue to live in their home to preserve their independence and autonomy allowing for an improved quality of life





References

- Altman, I. L. (1984). *Human behaviour and the environment: The elderly and the physical*. New York, NY: Plenum.
- American Association of Retired Persons. (2019, April 22). *More Americans Working Past 65*. AARP. <https://www.aarp.org/work/employers/info-2019/americans-working-past-65.html>
- American Association of Retired Persons Public Policy Institute. (2013, August). The Aging of the Baby Boom and the Growing Care Gap: A Look at Future Declines in the Availability of Family Caregivers. *INSIGHT on the Issues*, 85. https://observatorio.campus-virtual.org/uploads/31283_AARP_Envejecimiento-2013.pdf
- Aneshensel, C.S., Pearlin, L.I., Levy-Storms, L., & Schuler, R.H. (2000). The Transition From Home to Nursing Home Mortality Among People With Dementia, *The Journals of Gerontology: Series B*, 55(3), S152–S162, <https://doi.org/10.1093/geronb/55.3.S152>
- Baker, P.M. & Prince, M.J. (1990). Supportive housing preferences among the elderly. *Journal of Housing for the Elderly*, 7.
- Carver, M.C. & Jessie, A.T. (2011). Patient-centered care in a medical home. [The Online Journal of Issues in Nursing](http://www.medscape.com/viewarticle/751638). <http://www.medscape.com/viewarticle/751638>

References

- Centers for Medicare and Medicaid Services. (2020, December 16). *NHE Fact Sheet*. Centers for Medicare and Medicaid Services. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet>
- Coleman, T., Kearns, R.A., Wiles, J. (2016). Older adults' experiences of home maintenance issues and opportunities to maintain ageing in place. *Housing Studies*, 31(8), 964-983. <http://dx.doi.org/10.1080/02673037.2016.1164834>
- Crimmins, E.M. (2020). Social hallmarks of aging: Suggestions for geroscience research. *Ageing Research Review*, 63, 101136. <https://doi.org/10.1016/j.arr.2020.101136>
- Davey, J., Nana, G., de Joux, V., & Arcus, M. (2004). Accommodation options for older people in Aotearoa/New Zealand. *NZ Institute for Research on Ageing/Business & Economic Research Ltd, for Centre for Housing Research*
- Engineer, A., Sternberg, E.M., & Najafi, B. (2018). Designing Interiors to Mitigate Physical and Cognitive Deficits Related to Aging and to Promote Longevity in Older Adults: A Review. *Gerontology*, 64, 612-622. doi: 10.1159/000491488

References

- Friedman, C, Caldwell, J., Rapp Kennedy, A., & Rizzolo, M.C. (2018). Aging in Place: A National Analysis of Home-and Community-Based Medicaid Services for Older Adults. *Journal of Disability Policy Studies*. <https://doi.org/10.1177/1044207318788889>
- Gitlin, L. (2003). Conducting research on home environments: Lessons learned and new directions. *The Gerontologist*, 43(5), 628-637.
- Green, R.K., Harris, P.F., & Orlando, A.W. (2020). Breaking down silos to improve the health of older adults: The case for Medicare to cover home safety renovations. *Ageing Research Review*, 62, 101120. <https://www.sciencedirect.com/science/article/pii/S1568163720302555>
- Iglehart, J.K. (2011). Medicaid at a crossroads. *New England Journal of Medicine*, 364(17). <http://www.nejm.org.ezproxy.tcmcdc.net/doi/pdf/10.1056/NEJMp1103305> on 3/10/2012
- Krtolica, X. & Campisi, X. (2003). Integrating epithelial cancer, aging stroma and cellular senescence. *Adv Gerontol.*, 11, 19-16. <https://doi.org/10.1146/annurev-physiol-030212-183653>
- Kuh, D., Ben-Shlomo, Y., Lynch, J. Hallqvist, J., & Power, C. (2003). Life course Epidemiology. *Journal of Epidemiology & Community Health*, 57(10). <http://dx.doi.org/10.1136/jech.57.10.778>

References

- Lopez-Olin, C., Blasco, M.A., Partridge, L.P., Serrano, M., & Kroemer, G. (2013). The hallmarks of aging. *Cell*, 153(6), P1194-1217. <https://doi.org/10.1016/j.cell.2013.05.039>
- Lund, R., Due, P., Modvig, J., Holstein, B. E., Damsgaard, M. T., Andersen, P. K. (2002). Cohabitation and marital status as predictors of mortality—an eight-year follow-up study. *Social Science Medicine*, 55(4), 673–679.
- Miller, B., Campbell, R. T. Davis, L., Furner, S., Giachello, A., Prohaska, T.,. . . Perez, C. (1996). Minority use of community long-term care services: A comparative analysis. *Journal of Gerontology: Social Sciences*, 51B, S70-81.
- Moore, J. (2000). Placing home in context. *Journal of Environmental Psychology*, 20, 207-217.
- Muramatsu, N. & Campbell, R. T. (2002). State expenditures on home and community based services and use of formal and informal personal assistance: A multilevel analysis. *Journal of Health and Social Behavior*, 43, 107-124.
- National Council on Aging. (2018, July 10). *Healthy Aging Fact Sheet*. National Council on Aging. <https://d2mkcg26uvq1cz.cloudfront.net/wp-content/uploads/2018-Healthy-Aging-Fact-Sheet-7.10.18-1.pdf>

References

- National Council on Aging. (2016, December). *Mature Workers Fact Sheet*. National Council on Aging. <https://d2mkcg26uvq1cz.cloudfront.net/wp-content/uploads/NCOA-Mature-Workers.pdf>
- Norgard, T. M. & Rogers, W. L. (1997). Patterns of in-home care among elderly black and white Americans. *The Journals of Gerontology: Social Sciences*, 52B, 93-101.
- Redfoot, D., Feinberg, L., & Houser, A. (2013). The Aging of the Baby Boom and the Growing Care Gap: A Look at Future Declines in the Availability of Family. *INSIGHT on the Issues*, 85, <https://collections.nlm.nih.gov/catalog/nlm:nlmuid-101624602-pdf>
- Roger, L., & Wilder, K. (2020, June 25). *Shift in Working-Age Population Relative to Older and Younger Americans*. United States Census Bureau. <https://www.census.gov/library/stories/2020/06/working-age-population-not-keeping-pace-with-growth-in-older-americans.html>

References

- Sabia, J. J. (2008). There's no place like home: A hazard model analysis of aging in place among homeowners in the PSID. *Research on Aging, 30*(3). doi: 10.1177/0164027507307919
- Sawyer, B., & Sroczynski, N. (2017). *How do health expenditures vary across the population?* Kaiser Permanente Foundation. <https://www.healthsystemtracker.org/chart-collection/health-expenditures-vary-across-population/>
- Scocco, P., Rapattoni, M., & Fantoni, G. (2006). Nursing home institutionalization: A source of eustress or distress for the elderly? *International Journal of Geriatric Psychiatry, 21*, 281-287.
- Sierra, F. (2016). The Emergence of Geroscience as an Interdisciplinary Approach to the Enhancement of Health Span and Life Span. *Cold Spring Harb Perspect Med, 6*(a025163). doi: [10.1101/cshperspect.a025163](https://doi.org/10.1101/cshperspect.a025163)
- Stone, R., & Harahan, M.F. (2010). Improving the long-term care workforce serving older adults. *Health Affairs, 29*(1), 109-115. doi: 10.1377/hlthaff.2009.0554

References

- Szanton, S. L., Alfonso, Y.N., Leff, B., Guralnik, J., Wolff, J.L., Stockwell, I., Gitlin, L.N., & Bishai, D. (2018). Medicaid Cost Savings of a Preventive Home Visit Program for Disabled Older Adults. *Journal of American Geriatric Society*, 66(3), 614-620. doi: 10.1111/jgs.15143.
- Tinker, A. (1997). Housing for elderly people. *Reviews in Clinical Gerontology*, 7, 171-176.
- United Nations Dept of Economic and Social Affairs. (2019). *World Population Ageing 2019*. United Nations. <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf>
- United States Census Bureau. (2019, December 10). *2020 Census Will Help Policymakers Prepare for the Incoming Wave of Aging Boomers*. United States Census Bureau. <https://www.census.gov/library/stories/2019/12/by-2030-all-baby-boomers-will-be-age-65-or-older.html>
- United States Census Bureau. (2018). *American Community Survey*. United States Census Bureau. <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2018/>
- Vanleerberghe, P., De Witte, N., Claes, C., Schalock, R.L., & Verte, D. (2017). The quality of life of older people aging in place: a literature review. *Qual Life Res*, 26, 2899–2907 doi 10.1007/s11136-017-1651-0
-

References

- Vespa, J., Engelberg, J. & He, W. (2020). Old Housing, New Needs: Are U.S. Homes Ready for an Aging Population? U.S. Census Bureau. <https://www.census.gov/library/publications/2020/demo/p23-217.html>
- von Humboldt, S., & Leal, I. (2015). The Old and the Oldest-old: Do They Have Different Perspectives on Adjustment to Aging? *International Journal of Gerontology*, 9(3), 156-160.
<https://www.sciencedirect.com/science/article/pii/S1873959815000666>
- World Health Organization. (2018, February 5). *Ageing and health*. World Health Organization.
<https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>
- World Health Organization. (2020, October 26). *Ageing: Healthy ageing and functional ability*. World Health Organization. <https://www.who.int/westernpacific/news/q-a-detail/ageing-healthy-ageing-and-functional-ability#:~:text=Healthy%20ageing%20is%20the%20focus,policy%20framework%20developed%20in%202002>

References

- World Health Organization. (2014). *The Global strategy and action plan on ageing and health*. World Health Organization. <https://www.who.int/ageing/global-strategy/en/>