

# The Value of Medicines for Healthy Aging

## Background

One of the greatest achievements in the history of public health is the continued increase in life expectancy that began during the 20th century. While many advancements have contributed to the increase over time (e.g., enhanced sanitation), according to a recent study, 73 percent of the total increase in life expectancy between the years 2000 and 2009 can be attributed to pharmaceutical innovation.<sup>1</sup> The advent of new life-enhancing and life-extending medicines has been a powerful contributor to individuals living longer and better lives as they age.

Not only are more people living beyond what society traditionally viewed as old (i.e. over 60 or 65), but many more are swelling the ranks of the “older old.”<sup>2</sup> People over 60 years of age are the world’s fastest growing age group.<sup>3</sup> Globally, the number of older persons is expected to exceed the number of children (persons under 15) for the first time in 2045.<sup>4</sup> And the percentage of those over 80 years old is growing at an even greater rate. Among older individuals, nearly one in seven are 80 years or older, a number expected to grow to one in five by 2050.<sup>5</sup> Further, the number of people living to 100 years old is expected to grow from 455,000 worldwide in 2009 to 4.1 million in 2050, a nine-fold increase.<sup>6</sup>

## Contributions of Older Individuals

As older individuals live longer lives, they continue to contribute to and participate in society. In 2002, volunteerism among Americans 55 and older contributed between \$97.6 billion and \$201 billion to society through their time and skills,<sup>7</sup> and more than 60 percent of nonprofits reported working with volunteers between the ages of 65 and 74.<sup>8</sup> However, contributions of older individuals are not limited to volunteerism; a 2014 study found that 65 percent of baby boomers intend to work past retirement.<sup>9</sup> In the U.K., spending power and tax revenue of those over 65 are expected to reach £127 billion and £45 billion, respectively, by 2030.<sup>10</sup>

## From Longevity to Healthy Aging

Of course, along with the incredible value of increased life expectancy comes new challenges. As people are living longer, they are developing more chronic diseases. Today, chronic diseases, also referred to as noncommunicable diseases (NCDs), are the leading cause of disability, morbidity and mortality globally.<sup>11</sup> Estimates from 2009-2010 showed that 21 percent of Americans aged 45 to 64 have two or more chronic conditions.<sup>12</sup> This number rises as people age; data show over two-thirds of Medicare fee-for-service beneficiaries—those 65 and older—have two or more chronic conditions.<sup>13</sup>

## KEY TAKEAWAYS

---

73 percent of the total increase in life expectancy between the years 2000 and 2009 can be attributed to pharmaceutical innovation.<sup>1</sup>

---

There are currently more than 430 medicines being developed for 10 leading conditions affecting older people.<sup>24</sup>

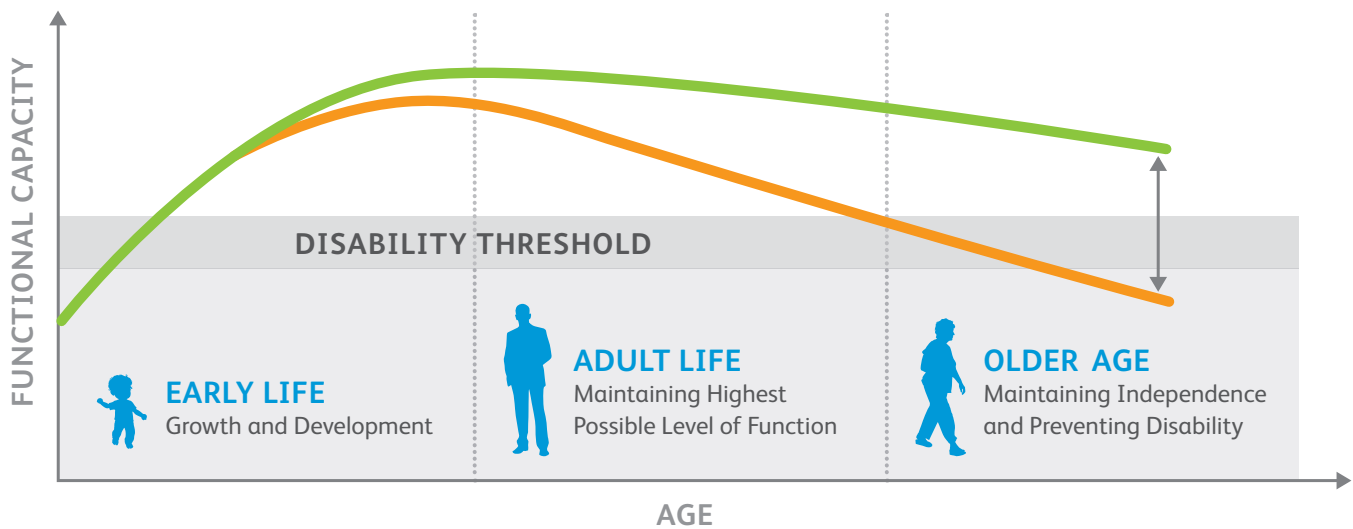
---

Estimates from 2009-2010 showed that 21 percent of Americans aged 45 to 64 have two or more chronic conditions.<sup>12</sup>

Given these developments, health care conversations have moved away from achieving longevity alone—they now focus on healthy aging, which seeks optimum health over the entire course of a person’s life by focusing on health-related quality of life (e.g., social interaction, pain management, mental health) and preventable risk factors for disease (e.g., smoking, alcohol use, obesity).

The graph below, called the “Disability Threshold,” demonstrates how functional capacity declines with age. However, as individuals age in better health, the decline is less severe over the life course. Recent data suggest that the presence of supports, such as benches and transportation, can mitigate declining functional status as well.<sup>14</sup>

**Aging in better health across the life course can reduce disease and disability in older age.**



Source: Adapted from Kalache, A., Kickbush, I. A Global Strategy for Healthy Ageing. World Health, 1997 50(4)-5.

**Demographic Challenges to Healthy Aging**

Disease can strike at any time. However, many diseases disproportionately affect certain demographic groups. Older individuals represent a demographic group where chronic diseases (stroke, heart diseases<sup>15</sup>), some acute infections (pneumococcal diseases<sup>16</sup>) and conditions (frailty<sup>17</sup>) are more commonly found.

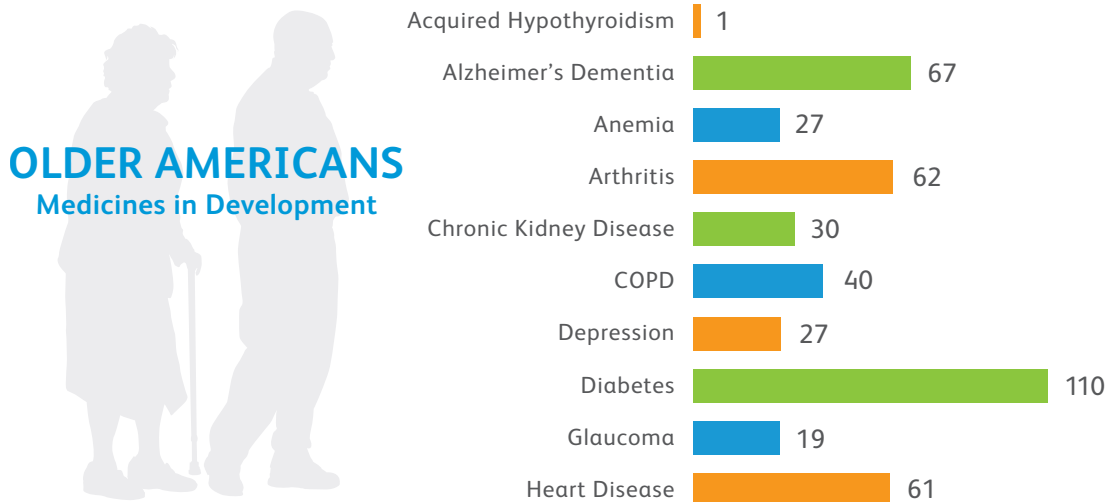
In addition to age itself, other sub-demographic factors impact healthy aging. Minorities bear a disproportionate burden of certain chronic diseases such as diabetes, heart disease and stroke,<sup>18</sup> while breast cancer is more common among Caucasian women compared with other racial groups.<sup>19</sup>

Gender represents another demographic factor that serves as an important determinant of health in the aging process. Women have increased risk for breast cancer,<sup>20</sup> HIV and autoimmune diseases (e.g., rheumatoid arthritis),<sup>21</sup> while men are at increased risk for hypertension, cardiovascular disease and colorectal cancer.<sup>22</sup> Additionally, women, who live longer than men on average, are at greater risk for dementia, a disease in which risk significantly increases as people age. In fact, after age 65, approximately one in six women are at risk of developing Alzheimer’s Disease, compared with one in 11 men.<sup>23</sup>

## Medicine and Healthy Aging

Innovations in medicine have provided support for healthy aging at every stage of life. For example, data from the National Long Term Care Survey showed that the probability of being disabled due to cardiovascular disease fell from 9.4 percent in

1989 to 8.0 percent in 1999, due to a combination of medicines and declining smoking rates. Countless medicines have been and continue to be developed by the pharmaceutical industry to fight the diseases that adversely impact the aging process. There are currently more than 430 medicines being developed for 10 leading conditions affecting older Americans (below).<sup>24</sup>



The following data show how medicines have helped prevent, treat and cure many of the conditions impacting individuals as they age:

- National U.S. survey data suggests that statin therapy, which helps control cholesterol levels and reduce risk of cardiovascular disease, is responsible for roughly 40,000 fewer deaths, 60,000 fewer hospitalizations for heart attacks and 22,000 fewer hospitalizations for strokes in 2008 alone.
- Over the past 20 years, improved rheumatoid arthritis treatments and strategies have reduced disability associated with the disease by 50 percent.<sup>25</sup>
- Innovations in stroke prevention, called novel oral anticoagulants (NOACs), have reduced the risk of stroke in patients with non-valvular atrial fibrillation.
- Prior to the introduction of vaccines, the annual incidence of often deadly diseases such as smallpox, polio and diphtheria cases in the U.S. annually were 29,005, 16,316 and 21,053, respectively. Since the introduction of vaccines for these diseases, the annual number of cases is zero.<sup>26</sup>

## Improving the Lives of Older Individuals

In addition to the contribution of medicines in helping individuals achieve optimum health as they age, governments, non-profits and other organizations are taking significant steps to promote healthy aging. The National Institutes of Health (NIH) and the Department of Health and Human Services (HHS) in the U.S. created the National Institute on Aging and the Administration for Community Living, respectively, to support older people's desire to experience optimum health.<sup>27</sup> In Europe, resources such as EuroHealthNet Healthy Ageing serve to equip older people to optimize good health.<sup>28</sup>

The U.S. Centers for Disease Control and Prevention (CDC) has recommended preventive services for individuals aged 50 or older,<sup>29</sup> which can decrease the likelihood of disease and disability. These services include screenings (e.g., mammograms for breast cancer and cholesterol for heart disease), immunizations (e.g., pneumococcal vaccine for at-risk individuals), adherence with select preventive services (e.g., blood pressure), and addressing risk factors for disease (e.g., cigarette smoking and diabetes).

Multilateral organizations such as the United Nations (U.N.), World Health Organization (WHO), and UNICEF have all started age-focused initiatives or policies where health is a component.<sup>30, 31, 32</sup> For example, the WHO began an initiative called Global Network of Age-friendly Cities and Communities to help locales more effectively meet the needs of their older residents by removing barriers to active and healthy aging. Employers are also helping by providing health and wellness services, life-management resources, and better access to health care.

## Conclusion

In all areas of the world, people are living longer than their predecessors. While lifestyle choices like diet and exercise

remain the most predictive variables to healthy aging, medicines have and will continue to play a central role in helping people live longer, with improved health and quality of life.

With more than 5,000 drugs in development worldwide by the pharmaceutical industry, and \$500 billion invested in research and development since 2000,<sup>33</sup> innovative treatments for diseases with high unmet and under-met medical needs will continue to offer new options for people to prevent, treat, and manage diseases as they age. As these medicines become available, access to them will be critical to realizing the benefits they can provide.

## Endnotes

1. Lichtenberg, F.R. (2012). Pharmaceutical innovation and longevity growth in 30 developing and high-income countries, 2000-2009. *National Bureau of Economic Research*. Retrieved from <http://www.nber.org/papers/w18235.pdf>
2. United Nations Department of Economic and Social Affairs. (2010). World Population Ageing 2009. Retrieved March 13, 2014 from <http://www.un.org/esa/population/publications/WPA2009/WPA2009-report.pdf>
3. World Health Organization. (2002). Second UN World assembly on ageing, active ageing: A policy framework, Madrid, Spain. Retrieved from [http://whqlibdoc.who.int/hq/2002/WHO\\_NMH\\_NPH\\_02.8.pdf](http://whqlibdoc.who.int/hq/2002/WHO_NMH_NPH_02.8.pdf)
4. United Nations Department of Economic and Social Affairs. (2010). World Population Ageing 2009. Retrieved March 13, 2014 from <http://www.un.org/esa/population/publications/WPA2009/WPA2009-report.pdf>
5. United Nations Department of Economic and Social Affairs. (2010). World Population Ageing 2009. Retrieved March 13, 2014 from <http://www.un.org/esa/population/publications/WPA2009/WPA2009-report.pdf>
6. United Nations Department of Economic and Social Affairs. (2010). World Population Ageing 2009. Retrieved March 13, 2014 from <http://www.un.org/esa/population/publications/WPA2009/WPA2009-report.pdf>
7. NGA Center for Best Practices. (2011). Fast Facts: Civic Engagement and Older Americans. *Nga.org*. Retrieved from <http://www.nga.org/files/live/sites/NGA/files/pdf/0607FASTFACTS.pdf>
8. Johnson, R.W., Schaner, S.A. (2006). Value of unpaid activities by older Americans tops \$160 billion per year. *The Urban Institute*, 4, 1-6.
9. Warner, C. (2014). Three unique generations with very different retirements ahead of them. *Transamericacenter.org*. Retrieved from <http://www.transamericacenter.org/docs/>
10. WRVS. (2011). Gold age pensioners: Valuing the socio-economic contributions of older people in the UK. *Goldagepensioners.com*. Retrieved from <http://www.goldagepensioners.com/Uploads/PDF/main-report.pdf>
11. World Health Organization. (2002). Second UN World assembly on ageing, active ageing: A policy framework, Madrid, Spain. Retrieved from [http://whqlibdoc.who.int/hq/2002/WHO\\_NMH\\_NPH\\_02.8.pdf](http://whqlibdoc.who.int/hq/2002/WHO_NMH_NPH_02.8.pdf)
12. Main Line Health. (2012). More Americans have at least 2 chronic health issues: CDC. *Mainlinehealth.org*. Retrieved July 16, 2014 from <http://www.mainlinehealth.org/stw/Page.asp?PageID=STW062695>
13. Lochner, K.A., Goodman, R.A., Posner, S., Parekh, A. (2013). Multiple chronic conditions among Medicare beneficiaries: State-level variations in prevalence, utilization, and cost, 2011. *Medicare and Medicaid Research Review*, 3, 3, E1-19.
14. Clarke, P., Ailshire, J.A., Lantz, P. (2009). Urban built environments and trajectories of mobility disability: Findings from a national sample of community-dwelling American adults (1986-2001). *Social Science & Medicine*, 69, 964-970.
15. Go, A.S., Mozaffarian, D., Roger, V.L., Benjamin, E.J., Berry, J.D., Borden, W.B., ... Turner, M.B. (2013). Heart disease and stroke statistics—2013 update: A report from the American Heart Association. *Circulation*, 127, e6-245. doi:10.1161/CIR.0b013e31828124ad
16. Centers for Disease Control and Prevention. (2012). Active bacterial core surveillance report emerging infections program network, Group A *Streptococcus pneumoniae*. *Cdc.gov*. Retrieved from <http://www.cdc.gov/abcs/reports-findings/survreports/spneu10.pdf> Centers for Disease Control and Prevention. (2007). Historical comparisons of morbidity and mortality for vaccine-preventable disease in the United States. *JAMA*, 298, 2155-63. doi:10.1001/jama.298.18.2155.
17. Langlois, F., Vu, T.T.M., Chasse, K., Dupuis, G., Kergoat, M., Bherer, L. (2013). Benefits of physical exercise training on cognition and quality of life in frail older adults. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 68, 3, 400-404.
18. American Association of Retired Persons. Chronic conditions among older Americans. *AARP.org*. Retrieved from [http://assets.aarp.org/rgcenter/health/beyond\\_50\\_hcr\\_conditions.pdf](http://assets.aarp.org/rgcenter/health/beyond_50_hcr_conditions.pdf)
19. Susan G. Komen. (2013). Facts for life: Racial and ethnic differences. *Komen.org*. Retrieved from [http://www5.komen.org/uploadedFiles/Content\\_Binaries/806-373a.pdf](http://www5.komen.org/uploadedFiles/Content_Binaries/806-373a.pdf)
20. American Cancer Society. (2013). Breast Cancer facts and figures 2013-2014. *Cancer.org*. Retrieved from <http://www.cancer.org/research/cancerfactsstatistics/breast-cancer-facts-figures>
21. National Institute of Health. (2012). Gender-Specific health challenges facing women. *Niaid.nih.gov*. Retrieved June 4, 2014 from <http://www.niaid.nih.gov/topics/womenshealth/pages/diseases.aspx>
22. National Conference of State Legislators. (2013). Men's health and chronic diseases- overview. *Ncsl.org*. Retrieved June 4, 2014 from <http://www.ncsl.org/research/health/mens-health-chronic-conditions.aspx>
23. Alzheimer's Association. (2014). Alzheimer's Disease facts and figures. *Alz.org/alzheimers-association*. Retrieved from [http://www.alz.org/alzheimers\\_disease\\_facts\\_and\\_figures.asp#women](http://www.alz.org/alzheimers_disease_facts_and_figures.asp#women)
24. Pharmaceutical Research and Manufacturers of America. (2014). 2014 Report: Medicines in development for older Americans. *PhRMA Medicines in Development*. Retrieved from <http://www.phrma.org/sites/default/files/pdf/2014-meds-in-dev-older-americans.pdf>
25. Overman, C.L., Jurgens, M.S., Bossema, E.R., Jacobs, J.W., Bijlsma, J.W., Geenen, R. (2013). Patient with rheumatoid arthritis nowadays are less psychologically distressed and physically disabled than patients two decades ago. *Arthritis Care & Research*. doi: 10.1002/acr.22211.
26. Centers for Disease Control and Prevention. (2010). 2008 estimates, S. pneumoniae estimates from active bacterial core surveillance. *MMWR*, 58, 52, 1458-68.
27. National Institutes on Aging. (2014). About NIA. *Nia.nih.gov*. Retrieved June 9, 2014 from <http://www.nia.nih.gov/about>
28. Irohla. (2014). Welcome. *Irohla.eu*. Retrieved June 9, 2014 from <http://www.irohla.eu/home/>
29. Centers for Disease Control and Prevention. (2009). Promoting preventive services for adults 50-64: Community and clinical partnerships. *Cdc.gov*. Retrieved from <http://www.cdc.gov/aging/pdf/promoting-preventive-services.pdf>
30. United Nations. (2014). Ageing. *Un.org*. Retrieved June 10, 2014 from <http://www.un.org/en/globalissues/ageing/index.shtml>
31. World Health Organization. (2007). Global age friendly cities: A guide. *WHO Press*. Retrieved from [http://www.who.int/ageing/publications/Global\\_age\\_friendly\\_cities\\_Guide\\_English.pdf](http://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf)
32. UNICEF. (2014). What is a Child Friendly City?. *Childfriendlycities.org*. Retrieved June 10, 2014 from <http://childfriendlycities.org/overview/what-is-a-child-friendly-city/>
33. Pharmaceutical Research and Manufacturers of America. (2013). Older Americans: the Medicare population and leading chronic diseases. *PhRMA Medicines in Development*. Retrieved from <http://www.phrma.org/sites/default/files/pdf/oac2013.pdf>

Issued by Global Policy and International Public Affairs

For more information, visit [Pfizer.com/ValueOfMedicines](http://Pfizer.com/ValueOfMedicines)

Please follow @pfizer on Twitter, where you can find more information using the hashtag #ValueofMeds

August 2014