Diabetes and Digestive and Kidney Diseases. Dr Regenbogen is supported by National Institute on Aging Mentored Career Development Award K08-AG047252.

Role of the Funder/Sponsor: The funding organizations had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication.

1. Heron M. Deaths: leading causes for 2016. *Natl Vital Stat Rep*. 2018;67(6):1-77.

2. DeGrauw X, Annest JL, Stevens JA, Xu L, Coronado V. Unintentional injuries treated in hospital emergency departments among persons aged 65 years and older, United States, 2006-2011. *J Safety Res*. 2016;56:105-109. doi:10.1016/j.jsr.2015.11.002

3. American College of Surgeons. *ACS TQIP Geriatric Trauma Management Guidelines*. https://www.facs.org/~/media/files/quality%20programs/trauma/tqip/geriatric%20guide%20tqip.ashx. Accessed December 22, 2018.

4. Hemmila MR, Nathens AB, Shafi S, et al. The Trauma Quality Improvement Program: pilot study and initial demonstration of feasibility. *J Trauma*. 2010;68(2):253-262. doi:10.1097/TA.0b013e3181cfc8e6

5. American College of Surgeons. *National Trauma Data Bank 2016: Annual Report*. https://www.facs.org/~/media/files/quality%20programs/trauma/ntdb/ntdb%20annual%20report%202016.ashx. Accessed December 22, 2018.

6. Colby SL, Ortman JM. *Projections of the Size and Composition of the US Population: 2014 to 2060*. March 2015. https://www.census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf. Accessed December 22, 2018.

Mortality From Falls Among US Adults Aged 75 Years or Older, 2000-2016

In the United States, an estimated 28.7% of adults aged 65 years or older fell in 2014.[1] Falls result in increased morbidity, mortality, and health care costs.[1,2] Risk factors for falls include age, medication use, poor balance, and chronic conditions (ie, depression, diabetes).[1] Fall prevention strategies are typically recommended for adults older than 65 years. In several European countries, an increase in mortality from falls has been observed since 2000, particularly among adults older than 75 years.[3,4] This age group has the highest fall risk and potential for cost-effective interventions. We report trends in mortality from falls for the US population aged 75 years or older from 2000 to 2016.

Editorial page 2080

Related article page 2092

Methods | Deaths from falls were extracted from the US National Vital Statistics System mortality files. These data are deidentified and publicly available; therefore, neither consent nor institutional review board review was required according to US federal regulations. Falls, defined as the underlying cause of death, were identified using *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* codes W00-W19. Unintentional deaths from falls for persons aged 75 years or older were collected between 2000 and 2016. Numbers of deaths from falls were specified for age and sex. Age-specific mortality rates were calculated in 5 age groups (75-79, 80-84, 85-89, 90-94, and ≥95 years). Age adjustment was performed by direct standardization to the 2000 US Census population and corrected for demographic changes throughout the study period. The mortality rate was expressed as cases per 100 000 persons aged 75 years or older. Age-specific population estimates overall and by sex, which are produced by the US Census Bureau each year, were used to calculate mortality rates.[5] The annual percentage change (APC) in mortality from falls was modeled using a linear regression model with Poisson error and log link. A $P < .05$ (2-sided testing) was considered statistically significant. The analyses were performed using SPSS statistical software version 17.0.0 (IBM).

Results | The absolute number of deaths from falls among US adults aged 75 years or older increased from 8613 in 2000 to 25 189 in 2016 (**Table**). The crude mortality rate increased from 51.6 (95% CI, 50.5-52.7) per 100 000 persons in 2000 to 122.2 (95% CI, 120.7-123.7) per 100 000 persons in 2016 (Table). Age-adjusted mortality rates among adults aged 75 years or older increased significantly from 60.7 (95% CI, 58.8-62.7) per 100 000 men in 2000 to 116.4 (95% CI, 113.7-119.1) per 100 000 men in 2016 and from 46.3 (95% CI, 45.0-47.6) per 100 000 women in 2000 to 105.9 (95% CI, 103.9-107.8) per 100 000 women in 2016 (**Figure**). Mortality rates increased by age group. In 2016, persons aged 75 to 79 years old experienced a rate of 42.1 deaths (95% CI, 40.7-43.5) per 100 000 compared with 590.7 deaths (95% CI, 566.0-615.3) per 100 000 in persons aged 95 years or older. The APC for adults aged 75 years or older was 5.1% (95% CI, 5.0%-5.2%) and increased with age from 3.5% (95% CI, 3.3%-3.7%) in adults aged 75 to 79 years to 6.4% (95% CI, 6.2%-6.7%) in those aged 95 years or older (Table).

Discussion | An increasing age-adjusted trend in mortality from falls was observed among older US adults from 2000 to 2016. Mortality rates increased with age and throughout the study period. The APCs were highest among the oldest age groups. These finding are consistent with European data,[3,4] although the mortality rates from falls were lower among the oldest old population in the United States compared with the Netherlands.[3] This might be explained by differences between those countries in both the demographic composition (eg, the population share of non-Hispanic whites) and activity patterns (eg, rates of outdoor activities such as walking and cycling) of the older population.

The current study is based on nationally representative vital statistics. However, limitations exist. The age-adjusted rates were based on information from the US Census Bureau, which reports it might undercount persons aged 65 years or older; this could result in an overestimation of death rates. Misclassification or incomplete recording of cause of death is another concern that could overestimate or underestimate deaths from falls.[6]

The circumstances behind the increasing trends in mortality from falls are not fully understood. Future studies should focus on explaining the recent increase in mortality from falls, especially among the oldest age groups and what can be done to tailor interventions for these older age cohorts.

Klaas A. Hartholt, MD, PhD
Robin Lee, PhD, MPH
Elizabeth R. Burns, MPH
Ed F. van Beeck, MD, PhD

Table. Mortality Rates From Falls and the Annual Percentage Change (APC) Among Persons Aged 75 Years or Older in the United States, 2000-2016

		2000		2004		2008		2012		2016		APC for Trend (95% CI)[b]
		No. of Deaths/ Population	Mortality Rate (95% CI)[a]	No. of Deaths/ Population	Mortality Rate (95% CI)[a]	No. of Deaths/ Population	Mortality Rate (95% CI)[a]	No. of Deaths/ Population	Mortality Rate (95% CI)[a]	No. of Deaths/ Population	Mortality Rate (95% CI)[a]	
Aged ≥75 y[c]	Overall	8613/16 685 631	51.6 (50.5-52.7)	12 644/17 535 786	72.1 (70.8-73.4)	16 997/18 271 942	93.0 (91.6-94.4)	20 858/19 152 403	108.9 (107.4-110.4)	25 189/20 613 865	122.2 (120.7-123.7)	5.1 (5.0-5.2)
	Men	3731/6 145 806	60.7 (58.8-62.7)	5488/6 630 460	82.8 (80.6-85.0)	7466/7 082 473	105.4 (103.0-107.8)	8955/7 616 209	117.6 (115.1-120.0)	10 994/8 401 717	130.9 (128.4-133.3)	4.5 (4.4-4.7)
	Women	4882/10 539 825	46.3 (45.0-47.6)	7156/10 905 326	65.6 (64.1-67.1)	9531/11 189 469	85.2 (83.5-86.9)	11 903/11 536 194	103.2 (101.3-105.0)	14 195/12 212 148	116.2 (114.3-118.1)	5.5 (5.4-5.6)
Aged 75-79 y[d]	Overall	1641/7 438 619	22.1 (21.0-23.1)	2246/7 461 399	30.1 (28.9-31.3)	2735/7 345 743	37.2 (35.8-38.6)	2900/7 493 891	38.7 (37.3-40.1)	3521/8 367 895	42.1 (40.7-43.5)	3.5 (3.3-3.7)
	Men	895/3 056 882	29.3 (27.4-31.2)	1189/3 140 080	37.9 (35.7-40.0)	1451/3 167 246	45.8 (43.5-48.2)	1518/3 293 629	46.1 (43.8-48.4)	1947/3 723 619	52.3 (50.0-54.6)	3.2 (2.9-3.5)
	Women	746/4 381 737	17.0 (15.8-18.2)	1057/4 321 319	24.5 (23.0-25.9)	1284/4 178 497	30.7 (29.0-32.4)	1382/4 200 262	32.9 (31.2-34.6)	1574/4 644 276	33.9 (32.2-35.6)	3.8 (3.5-4.1)
Aged 80-84 y[d]	Overall	2200/4 984 540	44.1 (42.3-46.0)	3436/5 528 504	62.2 (60.1-64.2)	4272/5 730 359	74.6 (72.3-76.8)	4876/5 780 040	84.4 (82.0-86.7)	5214/5 865 639	88.9 (86.5-91.3)	3.8 (3.6-4.0)
	Men	1052/1 853 013	56.8 (53.3-60.2)	1669/2 111 081	79.1 (75.3-82.9)	2113/2 252 413	93.8 (89.8-97.8)	2394/2 355 610	101.6 (97.6-105.7)	2595/2 453 255	105.8 (101.7-109.8)	3.5 (3.2-3.7)
	Women	1148/3 131 527	36.7 (34.5-38.8)	1767/3 417 423	51.7 (49.3-54.1)	2159/3 477 946	62.1 (59.5-64.7)	2482/3 424 430	72.5 (69.6-75.3)	2619/3 412 384	76.7 (73.8-79.7)	4.1 (3.9-4.4)
Aged 85-89 y[d]	Overall	2352/2 805 059	83.8 (80.5-87.2)	3447/2 996 417	115.0 (111.2-118.9)	4915/3 426 832	143.4 (139.4-147.4)	6059/3 878 275	156.2 (152.3-160.2)	7218/4 216 408	171.2 (167.2-175.1)	3.7 (3.6-3.9)
	Men	992/882 868	112.4 (105.4-119.4)	1465/985 297	148.7 (141.1-156.3)	2172/1 185 695	183.2 (175.5-190.9)	2650/1 400 060	189.3 (182.1-196.5)	3249/1 583 610	205.2 (198.1-212.2)	3.1 (2.9-3.3)
	Women	1360/1 922 191	70.8 (67.0-74.5)	1982/2 011 120	98.6 (94.2-102.9)	2743/2 241 137	122.4 (117.8-127.0)	3409/2 478 215	137.6 (132.9-142.2)	3969/2 632 798	150.8 (146.1-155.4)	4.2 (4.0-4.4)
Aged 90-94 y[d]	Overall	1682/1 118 432	150.4 (143.2-157.6)	2433/1 190 012	204.5 (196.3-212.6)	3521/1 363 656	258.2 (249.7-266.7)	4742/1 547 843	306.4 (297.6-315.1)	6161/1 676 448	367.5 (358.3-376.7)	5.4 (5.2-5.6)
	Men	592/284 376	208.2 (191.4-224.9)	891/317 369	280.7 (262.3-299.2)	1308/388 454	336.7 (318.5-355.0)	1773/466 428	380.1 (362.4-397.8)	2336/527 578	442.8 (424.8-460.7)	4.7 (4.4-5.0)
	Women	1090/834 056	130.7 (122.9-138.4)	1542/872 644	176.7 (167.9-185.5)	2213/975 203	226.9 (217.5-236.4)	2969/1 081 415	274.5 (264.7-284.4)	3825/1 148 870	332.9 (322.4-343.5)	5.8 (5.6-6.0)
Aged ≥95 y[d]	Overall	738/338 981	217.7 (202.0-233.4)	1082/359 454	301.0 (283.1-318.9)	1554/405 351	383.4 (364.3-402.4)	2281/452 353	504.3 (483.6-524.9)	3075/487 475	630.8 (608.5-653.1)	6.4 (6.2-6.7)
	Men	200/68 667	291.3 (250.9-331.6)	274/76 634	357.5 (315.2-399.9)	422/88 665	475.9 (430.5-521.4)	620/100 482	617.0 (568.5-665.6)	867/113 655	762.8 (712.1-813.6)	6.5 (6.0-7.0)
	Women	538/270 314	199.0 (182.2-215.8)	808/282 820	285.7 (266.0-305.4)	1132/316 686	357.5 (336.6-378.3)	1661/351 872	472.0 (449.3-494.7)	2208/373 820	590.7 (566.0-615.3)	6.4 (6.1-6.8)

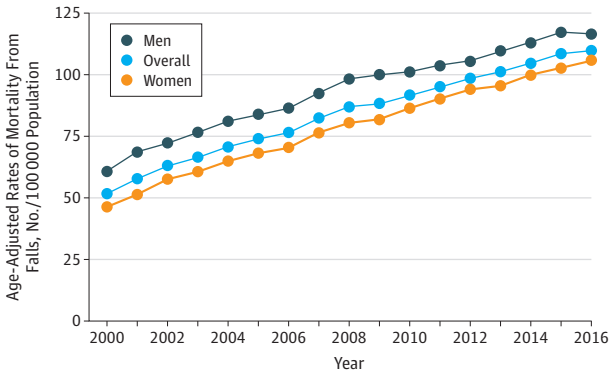
[a] Per 100 000 population.

[b] Significant in all groups at $P < .001$.

[c] The data are crude rates.

[d] The data are standardized rates.

Figure. Age-Adjusted Mortality Rates From Falls Among Persons Aged 75 Years or Older in the United States, 2000-2016



Author Affiliations: Department of Surgery-Traumatology, Reinier de Graaf Groep, Delft, the Netherlands (Hartholt); US Centers for Disease Control and Prevention, Atlanta, Georgia (Lee, Burns); Department of Public Health, Erasmus University Medical Center, Rotterdam, the Netherlands (van Beeck).

Accepted for Publication: March 19, 2019.

Corresponding Author: Klaas A. Hartholt, MD, PhD, Reinier de Graaf Groep, Reinier de Graafweg 5, 2626 AD Delft, the Netherlands (k.hartholt@rdgg.nl).

Author Contributions: Dr Hartholt had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Concept and design: Hartholt, Lee, van Beeck.
Acquisition, analysis, or interpretation of data: All authors.
Drafting of the manuscript: Hartholt, Lee, van Beeck.
Critical revision of the manuscript for important intellectual content: Lee, Burns, van Beeck.
Statistical analysis: Hartholt, Lee.
Supervision: Lee, van Beeck.

Conflict of Interest Disclosures: None reported.

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the US Centers for Disease Control and Prevention.

1. Bergen G, Stevens MR, Burns ER. Falls and fall injuries among adults aged ≥65 years—United States, 2014. *MMWR Morb Mortal Wkly Rep*. 2016;65(37):993-998. doi:10.15585/mmwr.mm6537a2

2. Florence CS, Bergen G, Atherly A, Burns E, Stevens J, Drake C. Medical costs of fatal and nonfatal falls in older adults. *J Am Geriatr Soc*. 2018;66(4):693-698. doi:10.1111/jgs.15304

3. Hartholt KA, van Beeck EF, van der Cammen TJM. Mortality from falls in Dutch adults 80 years and older, 2000-2016. *JAMA*. 2018;319(13):1380-1382. doi:10.1001/jama.2018.1444

4. Padrón-Monedero A, Damián J, Pilar Martin M, Fernández-Cuenca R. Mortality trends for accidental falls in older people in Spain, 2000-2015. *BMC Geriatr*. 2017;17(1):276. doi:10.1186/s12877-017-0670-6

5. US Census Bureau. American Community Survey and Decennial Census (2000-2016). https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml. Accessed April 22, 2019.

6. Cheng X, Wu Y, Yao J, Schwebel DC, Hu G. Mortality from unspecified unintentional injury among individuals aged 65 years and older by US state, 1999-2013. *Int J Environ Res Public Health*. 2016;13(8):E763. doi:10.3390/ijerph13080763

COMMENT & RESPONSE

Business Strategies to Promote Health

To the Editor Dr Koh and colleagues[1] discussed how companies can promote a culture of health. However, it is questionable whether the business case presented—corporate social responsibility as "integral to profit maximization"—is the ideal framework for doing so. Corporate social responsibility and profit maximization may not be reconcilable.

One of the references central to the authors' argument compared a sample of 180 US companies matched on whether they did or did not adopt sustainability policies. The study found that "high sustainability companies significantly outperform their counterparts over the long term."[2] However, it is unclear how valid, significant, representative, or generalizable this study is. First, matching of companies was based on "hard" considerations (market capitalization) without incorporating "soft" ones (leadership characteristics). Visionary leadership consistent with corporate social responsibility may well be a covariable with high performance. Second, the sample drew from an index of the "largest corporations in the world," with mean valuations of $34.7 billion.[3] Nearly all employ more than 500 individuals, yet since 99.9% of US companies employ fewer, it is unclear whether the findings can be extrapolated to most companies.[4] Third, no statistical significance in valuation accretion was noted on equal weighting of pairs, also potentially indicating the nongeneralizability of these findings to most companies. Fourth, designations of "high sustainability" seem relative—fewer than half of these companies adopted *any* sustainability policies. If the minority of the intervention cohort took even preliminary efforts to enact corporate social responsibility policies, how integral could such policies be to the observed performance?

Corporate social responsibility is not worthless, but tethering the virtue of corporate citizenship to profitability may misguide shareholder expectations, risking disillusionment and disinvestment.

Perhaps a better "business case" is viewing corporate social responsibility as fulfilling corporate fiduciary duties through accrual of intangible assets within companies, generation of public good beyond them, and a share in rising social welfare over the long term. Creation of public good does not automatically bestow profit, and benefits from rising social welfare may not manifest numerically over a discrete, quarterly cycled investment horizon for most companies.

Engagement of the private sector to support "the future of population health" is of the utmost importance.[1] However, associating corporate social responsibility with profitability may not successfully vanquish the short-term perspectives taken by investors causing deterioration of the corporate citizen[5]—and, in parallel, the health of individual citizens.

Eli M. Cahan, BBA

Author Affiliation: New York University School of Medicine, New York.

Corresponding Author: Eli M. Cahan, BBA, New York University School of Medicine, 550 First Ave, New York, NY 10010 (eli.cahan@med.nyu.edu).

Conflict of Interest Disclosures: None reported.

1. Koh HK, Singer SJ, Edmondson AC. Health as a way of doing business. *JAMA*. 2019;321(1):33-34. doi:10.1001/jama.2018.18935

2. Eccles RG, Ioannou I, Serafeim G. The impact of corporate sustainability on organizational processes and performance. *Manage Sci*. 2014;60(11):2835-2857. doi:10.1287/mnsc.2014.1984