Thus, although the free flow of information is touted as a means of promoting patient autonomy, the crowded landscape of biased health care information on the Internet creates an environment in which it may be more difficult for patients to make informed health care decisions. An important first step toward ameliorating these risks would be to clearly label hospital websites in a manner that allows patients to identify them as advertisements. More resources are needed to create, and direct patients to, balanced online informational tools. Clinicians should ask patients what they have learned from online medical searches and assist them in forming a complete picture of the risks and benefits of treatment options. Finally, we must focus future attention not only on the content of health care advertising but on its impact. The risk that imbalanced information on US hospital websites may negatively impact patient decision making should be an area of close scrutiny and may provide support for stricter advertising regulations.

Yael Schenker, MD, MAS
Alex John London, PhD

Author Affiliations: Section of Palliative Care and Medical Ethics, Division of General Internal Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania (Schenker); Department of Philosophy, Carnegie Mellon University, Pittsburgh, Pennsylvania (London).

Corresponding Author: Yael Schenker, MD, MAS, Section of Palliative Care and Medical Ethics, Division of General Internal Medicine, University of Pittsburgh, 230 McKee Pl, Ste 600, Pittsburgh, PA 15213 (schenkery@upmc.edu).


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The Epidemiologic Data on Falls, 1998-2010: More Older Americans Report Falling

Falling is the most frequent cause of injury in older adults in the United States, leading to substantial disability and mortality. A variety of studies have found that approximately one-third of older adults fall each year, but there have been no nationally representative longitudinal studies that examine falling across the population over time.1 Falling is anticipated to increase in the United States owing to changing demography. However, a prior statewide study showed a temporal increase (1999-2001) in the annual rate of falls requiring medical care, independent of age.2 We investigated temporal trends in falling on a national scale from 1998 to 2010, hypothesizing that any increase in prevalence would be due to changes in the age structure of the population.

Methods | We used data from 7 biennial waves (1998-2010) of the Health and Retirement Study, a nationally representative longitudinal health interview survey of a cohort of middle-aged and older adults in the United States.3,4 The Health and Retirement Study is sponsored by the National Institute on Aging, is performed by the Institute for Social Research (University of Michigan), and was approved by the University of Michigan Health Sciences Institutional Review Board. The practice of the Health and Retirement Study (for both telephone and in-person interviews) is for respondents to be read a confidentiality statement when first contacted; respondents provide oral or implied consent by agreeing to the interview. The study sample for each wave included all adults 65 years or older (≥10 590 for each wave).

We defined falling as at least 1 self-reported fall in the preceding 2 years. We also examined fall frequency and fall injuries. Covariates included sociodemographic characteristics (eg, age, sex, race and ethnicity, marital status, educational level), chronic diseases (eg, hypertension, heart disease, chronic lung disease, diabetes mellitus, musculoskeletal conditions, stroke), other geriatric conditions (eg, dementia, urinary incontinence, vision impairment, hearing impairment), and body mass index.5 We also investigated the effect of participation in prior interview waves on the self-report of falls. We used age-stratified cross-sectional and longitudinal logistic analyses to investigate falling across interview waves.

Results | Among all adults 65 years or older, the 2-year prevalence of self-reported falls increased from 28.2% in 1998 to 36.3% in 2010 (Figure). Stratifying by age, fall prevalence increased for adults aged 65 to 89 years (Table) and was most marked at the younger end of the age range (analysis of 1-year

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but 6 ages from 65 to 82 years (models, lineartimepredictedincreasedfallprevalenceforall
ealc for oral lbu but 4 age sf rom 65 to 88 years. Infull unify adjusted
across all 7 waves, lineartimepredictedincreasedfallpreva-
agecohorts). Using unadjusted age-stratified logistic models
across all 7 waves, lineartimepredictedincreasedfallpreva-
can. We could not find any significant effects for disease-by-
time interaction (eg, diabetes with time), suggesting that the
increase in fall prevalence is always observed, regardless of the
presence of disease. The increased self-report of falls across
interview waves was not associated with respondents’ parti-
ticipation in the immediately preceding interview wave; the
increase was likewise not associated with the total number of
preceding interviews in which respondents participated. There
was no increase in disability across interview waves, and the
increased self-report of falls was found with older adults with
and without a disability. There was no concomitant increase
in the prevalence of injury from falls at the population level
or with age stratification.

Discussion | Contrary to our hypothesis, we observed an in-
crease in fall prevalence among older adults that exceeds what
would be expected owing to the increasing age of the popula-
tion. Programs such as Matter of Balance focus on making older
adults aware of balance and fall risk and provide strategies to
reduce fall risk; these programs may improve reporting.6 Alter-
natively, if a true increase in falling is occurring, then further
research is needed to identify possible reasons, such as an in-
crease in fall risk factors (eg, cardiovascular and psychiatric
medications) or an increase in fall risk behavior.

Christine T. Cigolle, MD, MPH
Jinkyung Ha, PhD
Lillian C. Min, MD, MSHS
Pearl G. Lee, MD, MS
Tanya R. Gure, MD
Neil B. Alexander, MD, MS
Caroline S. Blaum, MD, MS

Author Affiliations: Department of Family Medicine, University of Michigan
Medical School, Ann Arbor (Cigolle); Division of Geriatric and Palliative
Medicine, Department of Internal Medicine, University of Michigan Medical
School, Ann Arbor (Cigolle, Ha, Min, Lee, Alexander); Division of General
Internal Medicine, The Ohio State University Wexner Medical Center, Columbus
(Gure); Division of Geriatrics, New York University Langone Medical Center,
New York, NY (Blaum).


Author Contributions: Drs Cigolle and Ha had full access to all the data in the
study and take responsibility for the integrity of the data and the accuracy of
the data analysis.

Study concept and design: Cigolle, Min, Lee, Gure, Alexander, Blaum.

Acquisition, analysis, or interpretation of data: Cigolle, Ha.

Drafting of the manuscript: Cigolle, Min, Alexander.

Critical revision of the manuscript for important intellectual content: Cigolle, Ha,
Min, Lee, Gure, Blaum.

Statistical analysis: Cigolle, Ha, Min.

Obtained funding: Cigolle, Gure.

Administrative, technical, or material support: Cigolle, Lee, Alexander.

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1. Tinetti ME, Speechley M, Ginter SF. Risk factors for falls among elderly
2. Murphy TE, Tinetti ME, Allore HG. Hierarchical models to evaluate
translational research: Connecticut collaboration for fall prevention. Contemp
4. Soldo BJ, Hurd MD, Rodgers WL, Wallace RB. Asset and Health Dynamics
Among the Oldest Old: an overview of the AHEAD Study. J Gerontol B Psychol
5. Cigolle CT, Langa KM, Kabeto MU, Tian Z, Blaum CS. Geriatric conditions and
cognitive behavioral group intervention on fear of falling and activity avoidance

Table. Two-Year Prevalence of at Least 1 Fall, Stratified by Age, 1998
and 2010

<table>
<thead>
<tr>
<th>Age at Interview, y</th>
<th>2-Year Prevalence, %*</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>65-69</td>
<td>22.3</td>
<td>.01</td>
</tr>
<tr>
<td>70-74</td>
<td>25.3</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>75-79</td>
<td>30.5</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>80-84</td>
<td>37.6</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>85-89</td>
<td>45.8</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>≥90</td>
<td>55.8</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

* Weighted percentages were derived using Health and Retirement Study respondent population weights to adjust for differential probability of selection into the sample and differential nonresponse.
HEALTH CARE REFORM

Effect of Public Disclosure on Antibiotic Prescription Rate for Upper Respiratory Tract Infections

Although antibiotics are not required for treating uncomplicated upper respiratory tract infection (URTI), which is mostly viral, they are often prescribed, fueling antibiotic resistance and loss of protective flora. Accordingly, many studies worldwide have tried to decrease inappropriate antibiotic prescribing behavior.²

In South Korea, where the National Health Insurance provides universal coverage, the Health Insurance Review & Assessment Service (HIRA) oversees claims reviews, quality assessment, and benefits and coverage standards. Since 2001, HIRA has used claims data to assess the appropriateness of care based on various quality indicators, including the antibiotic prescription rate for URTIs.

### Table. Comparison of Antibiotic Prescription Rates for URTIs by Intervention

<table>
<thead>
<tr>
<th>Hospital Type</th>
<th>Visits for URTI, No.</th>
<th>Antibiotic Prescription Rate [A], % (95% CI)</th>
<th>Visits for URTI, No.</th>
<th>Antibiotic Prescription Rate [B], % (95% CI)</th>
<th>Difference in Rate (A – B), % (95% CI)</th>
<th>Ratio of Rate (B:A) (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>4,651,905</td>
<td>58.8 (58.7-58.8)</td>
<td>7,013,624</td>
<td>53.0 (53.0-53.1)</td>
<td>5.7 (5.7-5.8)</td>
<td>0.90 (0.90-0.90)</td>
</tr>
<tr>
<td>Primary clinic</td>
<td>4,495,231</td>
<td>58.9 (58.9-58.9)</td>
<td>6,668,069</td>
<td>53.3 (53.3-53.4)</td>
<td>5.6 (5.5-5.6)</td>
<td>0.91 (0.90-0.91)</td>
</tr>
<tr>
<td>Secondary care hospital</td>
<td>87,559</td>
<td>54.6 (54.3-54.9)</td>
<td>215,387</td>
<td>46.6 (46.4-46.8)</td>
<td>8.0 (7.7-8.4)</td>
<td>0.85 (0.85-0.86)</td>
</tr>
<tr>
<td>Tertiary care hospital</td>
<td>69,115</td>
<td>56.2 (55.8-56.6)</td>
<td>130,168</td>
<td>49.7 (49.4-49.9)</td>
<td>6.5 (5.2-5.2)</td>
<td>0.88 (0.88-0.89)</td>
</tr>
</tbody>
</table>

Abbreviation: URTI, upper respiratory tract infection.

³ February 1, 2006, through December 31, 2010.

A, Segmented linear regression is shown. B, Autoregressive integrated moving average (ARIMA) model: (p, d, q) = (2, 0, 0); seasonal components, (p, d, q, s) = (1, 0, 0, 12). Vertical line indicates February 2006; dots, observed rates; solid line and curve, predicted rates; dashed line (A), trend of rates; dotted curves (B), 95% CIs of predicted rates.

**Figure. Segmented Linear Regression of the Rate of Antibiotic Prescriptions and Predicted Rate of Antibiotic Prescriptions With ARIMA Model**