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JAMA. 2008;300(13):1544-1550 (doi:10.1001/jama.300.13.1544)

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News Media Coverage of Medication Research Reporting Pharmaceutical Company Funding and Use of Generic Medication Names

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NEWSPAPER ARTICLES REPRESENT AN important source of medical information for many patients and even some physicians.¹⁻³ One way in which journalists may help patients and physicians better interpret medical information is by presenting the information in a commercially unbiased manner.⁴⁻⁹ An increasingly recognized source of commercial bias in medical research is the funding of studies by companies with a financial interest in the results.¹⁰⁻¹⁴ In response to concerns about company funding, most peer-reviewed medical journals now require that study authors disclose their funding sources.¹⁵⁻¹⁹

Little is known, however, about how frequently news articles report the funding sources of the medical research they report on. A previous study⁸ based on data from more than a decade ago found that only 47% of 70 newspaper stories that reported on 2 medications (pravastatin and alendronate) indicated when a cited expert or study had received company funding. That study did not examine stories from online news sources—an increasingly common source of news in the United States¹—nor did it report how prominently the disclosures were placed in the articles. Another study⁹ showed that Canadian

Context The news media are an important source of information about medical research for patients and even some physicians. Little is known about how frequently news articles report when medication research has received funding from pharmaceutical companies or how frequently news articles use generic vs brand medication names.

Objectives To assess the reporting of pharmaceutical company funding and generic medication name use in news articles about medication studies and to determine the views of newspaper editors about these issues.

Design, Setting, and Participants We reviewed US news articles from newspaper and online sources about all pharmaceutical company-funded medication studies published in the 5 most prominent general medical journals between April 1, 2004, and April 30, 2008. We also surveyed editors at the 100 most widely circulated newspapers in the United States.

Main Outcome Measures The percentage of news articles indicating when studies have been pharmaceutical company-funded and the percentage that refer to medications by their generic vs brand names. Also the percentage of newspaper editors who indicate that their articles report pharmaceutical company funding; the percentage of editors who indicate that their articles refer to medications by generic names; and the percentage of newspapers with policies about these issues.

Results Of the 306 news articles about medication research identified, 130 (42%; 95% confidence interval [CI], 37%-48%) did not report that the research had received company funding. Of the 277 of these articles reporting on medications with both generic and brand names, 186 (67%; 95% CI, 61%-73%) referred to the study medications by their brand names in at least half of the medication references. Eighty-two of the 93 (88%) newspaper editors who responded to our survey reported that articles from their publications always or often indicated when studies had received company funding (95% CI, 80%-94%), and 71 of 92 (77%) responding editors also reported that articles from their publications always or often referred to medications by the generic names (95% CI, 67%-85%). However, only 3 of 92 newspapers (3%) had written policies stating that company funding sources of medical studies be reported (95% CI 1%-9%), and 2 of 93 (2%) newspapers had written policies stating that medications should be referred to by their generic names (95% CI 1%-8%).

Conclusion News articles reporting on medication studies often fail to report pharmaceutical company funding and frequently refer to medications by their brand names despite newspaper editors' contention that this is not the case.

JAMA. 2008;300(13):1544-1550

www.jama.com

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newspaper articles discussing studies involving 5 specific medications (atorvastatin, celecoxib, donepezil, oseltamivir, and raloxifene) frequently failed to mention how the studies were funded; however, the authors did not report how many of the cited studies were company sponsored.

Another way the news media may reduce commercial bias in the medical information they present is by using non-proprietary medication names.²⁰⁻²² Generic names may also be preferable because many medications come in multiple brands, and the use of generic names may reduce confusion and even potentially dangerous medication errors.²³⁻²⁷ Although pharmacies frequently substitute brand-name medications for less expensive generic versions,²⁸ the unnecessary use of brand medications when a related generic could be used may account for as much as \$9 billion in wasteful expenditures in the United States annually.^{22,29,30} For these reasons, most medical journals require the use of generic names,¹⁵ the Institute for Safe Medication Practices recommends that generic medication names be used as the primary nomenclature in electronic ordering systems,²⁴ and the US Food and Drug Administration mandates the use of generic names in advertising and on labels and brochures.³¹⁻³³ To our knowledge, no previous studies have examined the use of generic vs brand medication names by the news media.

We sought to determine how frequently and prominently US newspaper and online articles about pharmaceutical company-funded medication studies indicate the funding source and how often they refer to medications by their brand vs generic names. We also surveyed editors at the 100 most widely circulated newspapers in the United States about their publications' practices on the reporting of company funding and the use of generic medication names.

METHODS

Analysis of News Articles

Identifying Medical Journal Studies. We identified all pharmaceutical or biotechnology company-funded stud-

ies evaluating the effectiveness or safety of medications published between April 1, 2004, and April 30, 2008, in the 5 general medical journals with the highest impact factor (*New England Journal of Medicine*, *JAMA*, *Lancet*, *Annals of Internal Medicine*, and *Archives of Internal Medicine*).³⁴ The studies were identified by manually reviewing titles and abstracts of all original articles published in these 5 journals during the specified period. Randomized trials and observational studies were included, but meta-analyses and other review articles were excluded.

Study funding sources were determined by reviewing the "Methods" and "Acknowledgements" sections of the published articles; only studies that received at least partial funding from pharmaceutical companies were included. Studies in which free medications, but no other funding, were provided by a pharmaceutical company were not included. We also excluded studies in which the researchers had personally accepted company payments but the study itself was not company funded.

Identifying News Articles. We then identified news articles that reported on the results of these medication studies by searching major US newspapers and online news sources. The newspapers searched were the 45 non-business-oriented US newspapers included in the Lexis-Nexis database of major newspapers as of November 2006 (See eTable 1 available at <http://www.jama.com> and <http://www.lexisnexis.com> for a list of the publications in the database). The online sources we searched were the 7 US-based primary news Web sites that were listed as the top news source for a major news item on "Google News" 10 or more times between January 2006 and November 2006 (ABC News, CNN, Fox News, Time, MSNBC, CBS, and NPR). This list was obtained from Newsknife (<http://www.newsknife.com>), a commercial advertising agency. Business-oriented news publications were again excluded, as were newspaper Web sites.

For each eligible study, a search was performed in the Lexis-Nexis database of "Major Newspapers." The generic and brand names of all study medications were entered as search terms along with the name of the medical journal in which the study was published. For medications with multiple brand names, the brand name of the medication made by the sponsoring company was used. These terms were searched in the "Headline, Lead Paragraphs, and Indexing" of all articles in the database. By placing the word "or" between all medication names and the word "and" before the medical journal name, articles were returned that contained any 1 of the medication names as well as the medical journal name.

The date ranges of the search were the 6-month period prior to the publication date of the study until 14 days after the publication date. In a few instances, the authors knew based on results from their online searches that the study results had been released more than 6 months before the date the study was published, and in these instances the date range was modified to include the dates when the study results were first released.

All articles that were returned using this search strategy and were at least 200 words in length were reviewed. Articles that focused on the new research findings were included in the analysis; articles that mentioned the new research only peripherally were not included. There was some judgment on the part of the authors in determining which articles should be included based on the above criteria, but for the most part it was clear whether an article should be included in the analysis.

Online articles were identified in a similar manner by searching the Web sites of the 7 online news sources on <http://www.google.com>. The only difference in the search strategy was that articles containing either the medication brand or generic name anywhere in the document, rather than just in the headlines or lead paragraph, were returned. For each eligible study, on the

“advanced Google search” in the boxes labeled “one or more of these words,” the generic and brand names of all study medications were entered. In the box labeled “all these words” the name of the medical journal was entered. Again, all articles at least 200 words in length that focused on the new research findings were included in the analysis.

Analysis of News Articles

We reviewed each news article to determine whether the study funding source was listed, and if so whether it was listed in the first 150 words of the article. We also determined whether study medications were referred to by their brand names, generic names, or both. Articles in which both names were used were further classified according to whether brand names were used in at least half of the medication references. When a news article reported on a medication without a brand name, the article was not included in the generic vs brand name analysis.

In some instances, articles came from a newswire source (eg, the Associated Press) and appeared in more than 1 publication (ie, a repeated article). Repeated articles were counted once. When a newswire article appeared in both an online and a newspaper publication, it was counted as either an online or newspaper article on an alternating basis.

The percentage of news articles indicating that the medical journal study was sponsored by a pharmaceutical company was calculated along with 95% exact confidence intervals (CIs). Additionally, the percentages of news articles referring to medications by their brand names exclusively and by brand names in at least half of the references were calculated along with 95% exact CIs. For both of these outcomes, we compared the percentages between the 2 types of news media (ie, newspaper and online articles) using 2-sided χ^2 tests with an a priori level of significance of $P \leq .05$. To determine whether the increasing recent attention about commercial bias in medical research has affected medical coverage by the news

media, we compared the rates of reporting of company funding and generic name usage between news articles published within the final 13 months of the study period and articles published in the first 36 months. Two-sided χ^2 tests were used to compare the percentages with an a priori level of significance of $P \leq .05$. We used SAS statistical software version 9.1 (SAS Institute Inc, Cary, North Carolina) for all statistical calculations.

Survey of Newspaper Editors

Identification of Newspaper Editors.

Between July 1 and September 30, 2007, we surveyed editors at the 100 most widely circulated US newspapers³⁵ about their coverage of medical studies (eTable 2 available at <http://www.jama.com>). The name of the health editor at each newspaper was obtained from the *News Media Yellow Book*.³⁶ When no health editor was listed, the name of the features editor was obtained. When no features editor was listed, the name of the managing editor or editor-in-chief was obtained.

Survey. Each editor was e-mailed a short survey asking how frequently articles about medical research from his/her publication report when a study has been company funded, report when quoted experts have financial ties to pharmaceutical companies, and refer to medications by their generic vs brand names. We then asked editors whether the news organization has a policy on the reporting of company funding of such studies or on the use of generic medication names. We also asked whether the editor had personally accepted a gift from a pharmaceutical representative within the past year. The e-mail was preceded by a telephone call alerting the editor of the coming e-mail survey. Each nonresponding editor was e-mailed and called weekly for up to 4 weeks. When an editor explicitly opted not to participate or failed to respond after 4 telephone and e-mail contacts, another editor at the publication was contacted. On several occasions, an editor referred us to another editor who could better answer the survey. In 2 in-

stances, an editor referred us to a health reporter; all other surveys were sent to editors. The editors' tabulated responses to each question were reported along with exact 95% CIs.

Correspondence Between Editor Survey Results and Newspaper Article Analysis. We then determined how well the editor's responses corresponded to his/her publication's actual performances. First, we identified all articles from publications at which the editor had indicated that company funding was always reported. Then we determined the percentage of these articles that actually indicated when company funding had occurred. Likewise, we identified all articles from publications at which the editor indicated that generic medication names were always used and determined the percentage of these articles that actually referred to medications by their brand names in at least half of the references.

In addition, we sought to determine whether articles from publications that had policies about the reporting of company funding and the use of generic medication names were more likely to mention when company funding had occurred than articles from publications without policies. We stratified the results of our analysis of news articles according to whether the articles came from publications with written, unwritten, or no policies. Only articles from newspapers that reportedly either had or did not have policies (on the basis of our survey) were included in this analysis.

The survey protocol was approved by the Cambridge Health Alliance Institutional Review Board.

RESULTS

Reporting of Company Funding in News Articles

A total of 358 company-funded medication studies were identified in the 5 medical journals. Of these 358 studies, 117 yielded news articles that met the study inclusion criteria: 68 from *New England Journal*, 24 from *JAMA*, 16 from *Lancet*, 7 from *Annals of Internal*

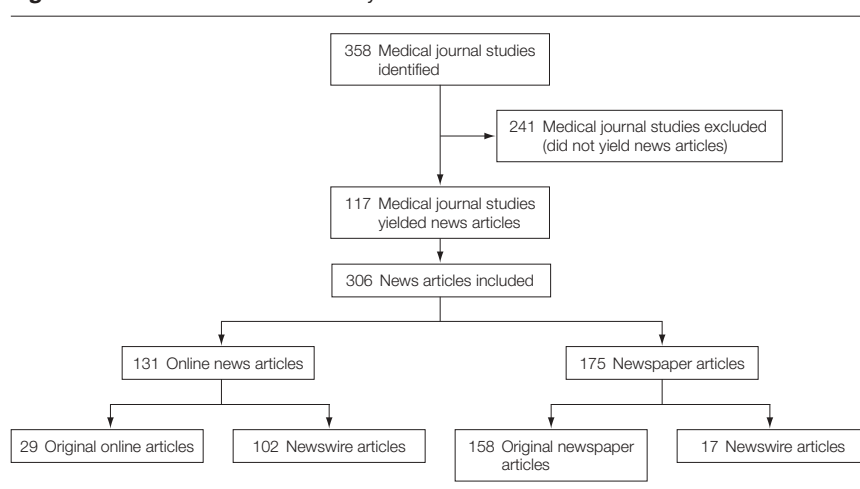
Medicine, and 2 from *Archives of Internal Medicine*. The most news articles reporting on any single study was 15.

A total of 306 distinct news articles from 26 newspapers and 7 online sources reporting on these 117 pharmaceutical company-funded medication studies were identified. Of these 306 news articles, 175 were from newspapers and 131 were from online sources. Of the 175 newspaper articles, 158 were written by staff writers and 17 were newswire articles. Of the 131 online articles, 29 were written by staff writers while 102 were newswire articles (FIGURE). Characteristics of the 306 news articles are listed in TABLE 1.

Among the 306 news articles about company-funded medication studies, the funding source for the studies was not reported in 42% (95% CI, 37%-48%; TABLE 2). Of the 176 articles in which the funding source was reported, 18% (95% CI, 13%-25%) included this information within the first 150 words of the article. There was no significant difference in nonreporting rates between articles obtained from newspaper and online sources (43% vs 42%, respectively, $P=.88$). There was also no significant difference in nonreporting rates between articles published in the final 13 months of the study period and articles published in the first 36 months (37% vs 44%, respectively, $P=.25$).

Of the 306 news articles, 277 concerned medications with both generic and brand names. Among these 277 articles, 38% (95% CI, 32%-44%) used only brand names and 67% (95% CI, 61%-73%) used brand names in at least half of the medication references (Table 2). There was no significant difference in the use of generic vs brand names between articles obtained from newspaper and online sources (66% of newspaper articles referred to medications by their brand names in at least half of the medication references compared with 69% of online articles, $P=.59$). There was also no significant difference in the use of generic vs brand

Figure. Distribution of News Articles by Source



names between articles published in the final 13 months of the study period and articles published in the first 36 months (69% of articles published in the final 13 months referred to medications by their brand names in at least half of the medication references compared with 67% of articles published in the first 36 months, $P=.70$).

Survey of News Media Editors

Responses to the survey were obtained from editors at 94 of 100 newspapers (94%). Two editors declined the survey because their publications do not regularly cover health stories. Editors at 4 newspaper publications did not respond. Of the 94 responses, 61 were from the first editor at the publication to be contacted.

At 88% (95% CI, 80%-94%) of the newspapers, the editor indicated that his/her publication often or always reported company funding in articles about medical research (93 respondents), and at 82% (95% CI, 72%-89%), the editor reported that his/her publication often or always indicated when cited experts have financial ties to pharmaceutical companies (88 respondents; TABLE 3). The editor at 77% (95% CI, 67%-85%) of the newspapers responded that his/her publication often or always referred to medications by the generic names in articles about medical research (92 respon-

Table 1. Characteristics of News Articles (N = 306)

Article Characteristic	No. of Articles
Year of publication	
2004	50
2005	76
2006	81
2007	71
2008	28
Medication category	
Dyslipidemia	61
Cancer	53
Diabetes mellitus	24
Thrombosis	13
Multiple sclerosis	12
Osteoporosis	12
Other diseases	131
Circulation ^a	
≥500 000	121
<500 000	54
Newspaper region ^a	
Northeast	79
Midwest	40
Northwest	26
Southwest	6
Southeast	6
National	18

^aOnly relevant for newspaper articles (n = 175).

dents). The editor at 3% (95% CI, 1%-9%) of the newspapers indicated that his/her publication had a written policy stating that company funding should be reported in articles about medical research, while the editor at 62% (95% CI, 51%-72%) of newspapers responded that his/her publication had

unwritten policies indicating that sponsorship should be reported (92 respondents). The editor at 2% (95% CI, 1%-8%) of newspapers indicated that his/her publication had a written policy stating that medications should be referred to predominantly by their generic names, while the editor at 18% (95% CI, 11%-28%) of newspapers reported that his/her publication had an unwritten policy indicating that generic names should predominantly be used (93 respondents). The editor at 4%

(95% CI, 1%-11%) of newspapers reported that he/she had received a gift from a pharmaceutical representative within the past year, and 1% (95% CI, 1%-9%) reported that he/she had received a gift valued at more than \$5 (93 respondents).

The editors' perceptions diverged from their publications' actual performances. A total of 104 newspaper articles were analyzed from publications for which editors reported always identifying company funding. Of these

articles, 45% (95% CI, 35%-55%) failed to cite company funding. Additionally, a total of 75 newspaper articles were analyzed from publications for which the editors reported always using generic names. Of these articles, 76% (95% CI, 65%-85%) used brand names in at least half of the medication references.

TABLE 4 shows the percentages of newspaper articles that indicated when company funding had occurred stratified according to whether the articles

Table 2. Reporting of Pharmaceutical Company Funding and the Use of Medication Brand Names in News Articles

Source	Articles Reporting on Pharmaceutical Company-Funded Studies			Articles Reporting on Medications With Brand and Generic Names		
	Total No. of Articles	Funding Source Not Reported		Total No. of Articles	Brand Names Used to Identify Treatment Drug	
		No. of Articles	% (95% Confidence Interval)		No. of Articles ^a	% (95% Confidence Interval) ^a
Newspapers	175	75	43 (35-51)	158	104	66 (58-73)
Online	131	55	42 (33-51)	119	82	69 (60-77)
Total	306	130	42 (37-48)	277	186	67 (61-73)

^aDefined as brand name use in at least half of medication references among articles about medications with brand names.

Table 3. Newspaper Editors' Views on the Reporting of Pharmaceutical Company Funding of Medical Research and the Use of Generic Medication Names in News Articles

Question	No. of Respondents (n = 100)	% (95% Confidence Interval)			
		Always	Often	Sometimes	Never
When you run a story about a medical study that was funded by a pharmaceutical company, do you indicate that the funding source was a pharmaceutical company?	93	69 (58-78)	19 (12-29)	12 (6-20)	0 (0-4)
When you quote medical experts who have financial connections to pharmaceutical companies in articles about medical research, do you indicate this in your stories?	88	48 (37-59)	34 (24-45)	17 (10-27)	1 (0-6)
Do your articles refer to medications by their generic names (for example, acetaminophen) as opposed to the brand names (for example, Tylenol) in articles about medical research?	92	39 (29-50)	38 (28-49)	23 (15-33)	0 (0-4)

Table 4. Correspondence Between Newspaper Policies and the Reporting of Company Funding and the Use of Brand Medication Names

News Organization Policy	Organizations With Each Policy		No. of Stories ^a	Stories Not Reporting Funding Source, % (95% CI)	Stories Using Brand Names, % (95% CI) ^b
	No.	% (95% CI)			
Reporting of funding source					
None	32	35 (25-45)	73	42 (32-54)	
Unwritten	57	62 (51-72)	58	31 (20-45)	
Written	3	3 (1-9)	31	61 (42-78)	
Generic names ^c					
None	74	80 (70-87)	114		64 (55-72)
Unwritten	17	18 (11-28)	27		81 (62-94)
Written	2	2 (1-8)	3		33 (1-91)

Abbreviation: CI, confidence interval.

^aRefers to newspaper articles included in the news article analysis from publications with each type of policy.

^bDefined as brand name use in at least half of medication references among articles concerning medications with brand names.

^cAnalysis only includes articles concerning medications with brand names.

were from publications with written, unwritten, or no policies about the reporting of company funding. Articles from newspapers with written policies were more likely not to report the funding source than articles from newspapers with no or unwritten policies combined (61% with written policies did not report vs 39% without written policies, $P = .02$), however, articles from only 2 publications with written policies were included in this analysis.

Table 4 also shows the percentage of newspaper articles that refer to medications by their brand names in at least half of the references stratified according to whether the articles came from publications with written, unwritten, or no policies about the use of generic medication names. There were no differences among the 3 groups ($P = .09$), but articles from only 1 publication with a written policy and 3 publications with unwritten policies were included in this analysis.

COMMENT

Our analysis of news articles from US newspapers and online sources suggests that lay media journalists frequently fail to indicate when medication studies have received company funding. Even when this information is reported, it is seldom placed prominently in the text. As a result, those who learn about medical research from the news media may remain unaware of how the research has been funded. In addition, our analysis suggests that news articles usually refer to medications by their brand names rather than their generic names. As a result, those who read about medications in the US news media may frequently learn to refer to medications by their brand names.

In our survey of newspaper editors, most reported their publications always or often indicated when medical research had received company funding. Most also indicated their publications always or often referred to medications by their generic names. These results are discordant with the findings from our analysis of news articles. These discrepancies may be due, in part, to the

fact that some of the editors we surveyed worked for publications not included in our analysis of news articles. However, even articles from publications for which the editors reported always including information about company funding or always referring to medications by their generic names frequently failed to do so.

Our study also showed that the majority of major newspapers lacked written policies on the reporting of pharmaceutical company funding and the use of generic medication names. Although most publications had unwritten policies specifying that company funding should be reported, only a few had unwritten policies concerning generic names. These findings may partially explain why journalists so frequently neglect to report when research has received company funding and so frequently refer to medications by their brand names. However, many articles in our analysis from publications with policies about the reporting of company funding and the use of generic names frequently did not follow these policies.

We suspect that journalists may frequently neglect to indicate how medical research has been funded because they are often unaware when a study has been company sponsored. Information about research funding may be buried within the methods section or at the end of journal articles, and unless journalists carefully read the articles—a difficult task for those without a medical background—they are unlikely to discover this information. Additionally, news releases—which many journalists rely on for summaries of technically difficult material—often fail to indicate when a study has been company funded.³⁷ One study published in 2002, for example, found that only 22% of news releases issued by medical journals noted when a study had received company funding.³⁷

Similarly, we speculate that journalists may sometimes refer to medications by their brand names because they do not know whether a drug name is generic or brand. Additionally, sev-

eral of the newspaper editors in our survey told us informally that they often refer to medications by their brand names because they believe lay readers are more likely to recognize brand names. Moreover, because only a minority of newspapers in our survey had policies (written or unwritten) about generic name use, it is likely that many journalists do not consider generic names to be preferable.

Our study is the most comprehensive analysis that we are aware of that examines the reporting of company funding in medical research by the US news media. It builds on previous research^{8,9} by including a substantially larger number of news articles, a broader array of news sources (including online sources), and survey data from journalists. This is also the first study we are aware of that examines the use of generic vs brand medication names by the US news media.

Our study has several limitations. We only identified studies published in the 5 highest impact medical journals, and only surveyed journalists from the most widely circulated publications; therefore, our results may not be representative of all types of medication studies reported in all types of lay media publications. Additionally, we did not examine news media reports from television and radio sources. Moreover, because the availability of articles in the Lexis-Nexis and online databases varies from time to time, it is possible that our search missed a number of relevant news articles. However, it seems unlikely that such missed articles would differ systematically from the articles in our analysis.

Our findings raise several concerns. For patients and physicians to evaluate new research findings, it is important that they know how the research was funded so they can assess whether commercial biases may have affected the results. Additionally, the use of generic medication names by the news media is preferable so that physicians and patients learn to refer to medications by their generic names, a practice that is likely to reduce medication

errors and may decrease unnecessary health care costs.

News publications should consider implementing and enforcing written policies stating that all news articles about medical research must indicate study funding and should predominantly use generic names. However, as we have shown, this alone is likely to be insufficient. Educational efforts will also likely be needed to help journalists more easily identify how medical studies have been funded. Medical journals can help journalists in this effort by making disclosures of funding sources more prominent and by issuing news releases that include this information. Educational efforts are also needed to encourage the use of generic medication names by the news media because many journalists apparently are unaware of the importance of this practice.

Author Contributions: Dr Hochman 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.

Study concept and design: M. Hochman, McCormick.

Acquisition of data: M. Hochman, S. Hochman.

Analysis and interpretation of data: M. Hochman, S. Hochman, Bor, McCormick.

Drafting of the manuscript: M. Hochman.

Critical revision of the manuscript for important intellectual content: M. Hochman, S. Hochman, Bor, McCormick.

Statistical analysis: M. Hochman, McCormick.

Obtained funding: M. Hochman, Administrative, technical, or material support: M. Hochman, S. Hochman, Bor, McCormick.

Study supervision: McCormick.

Financial Disclosures: None reported.

Funding/Support: The study was paid for by the Department of Medicine at Cambridge Hospital.

Role of the Sponsor: Cambridge Hospital, Department of Medicine, had no role in the study design and conduct of the study; in the collection, analysis, and interpretation of the data; or in the preparation, review, or approvals of the manuscript.

Previous Presentations: Some of the results of this study were previously reported at the Society of General Internal Medicine's New England Regional Meeting in Worcester, Massachusetts, on March 14, 2008.

Additional Information: The eTables are available at <http://www.jama.com>.

Additional Contributions: We thank David Himmelstein, MD, Steffie Woolhandler, MD, MPH, Karen Lasser, MD, MPH, and Andrew Wilper, MD, MPH, all from the Department of Medicine at Cambridge Hospital, for their thoughtful critiques and suggestions, for which they received no compensation.

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