Physicians Recommend Different Treatments for Patients Than They Would Choose for Themselves

Peter A. Ubel, MD; Andrea M. Angott, PhD; Brian J. Zikmund-Fisher, PhD

Background: Patients facing difficult decisions often ask physicians for recommendations. However, little is known regarding the ways that physicians’ decisions are influenced by the act of making a recommendation.

Methods: We surveyed 2 representative samples of US primary care physicians—general internists and family medicine specialists listed in the American Medical Association Physician Masterfile—and presented each with 1 of 2 clinical scenarios. Both involved 2 treatment alternatives, 1 of which yielded a better chance of surviving a fatal illness but at the cost of potentially experiencing unpleasant adverse effects. We randomized physicians to indicate which treatment they would choose if they were the patient or they were recommending a treatment to a patient.

Results: Among those asked to consider our colon cancer scenario (n=242), 37.8% chose the treatment with a higher death rate for themselves but only 24.5% recommended this treatment to a hypothetical patient (χ²=4.67, P=.03). Among those receiving our avian influenza scenario (n=698), 62.9% chose the outcome with the higher death rate for themselves but only 48.5% recommended this for patients (χ²=14.56, P<.001).

Conclusions: The act of making a recommendation changes the ways that physicians think regarding medical choices. Better understanding of this thought process will help determine when or whether recommendations improve decision making.

Arch Intern Med. 2011;171(7):630-634

Most physicians have received requests from patients for clinical recommendations. How should physicians respond to such requests?

Some experts contend that patients ought to be the primary decision makers and that physicians should avoid making treatment recommendations that influence patient choice. These experts point out that physician recommendations can be coercive. Indeed, physician recommendations have been shown to have a strong influence on patient choice and can even pull patients away from the alternatives that are in their best interests.

See Invited Commentary at end of article

This disapproval of physician recommendations is based on the assumption that because patients know their own preferences better than their physicians do, the best way to ensure that patients make choices consistent with such preferences is to inform them of their medical alternatives and allow them to make the final choice. According to this assumption, physician recommendations will only serve to draw patients away from their own preferences.

However, others have questioned this disapproval on the basis that recommendations could, in some circumstances, promote patients’ best interests. Patients’ decisions are susceptible to cognitive biases, which can cause them to make choices that contradict their own best interests. Physician recommendations could potentially help patients overcome these biases. First, physicians may be more dispassionate and thus less susceptible to cognitive biases than patients. Second, the mere act of making a recommendation may alter the psychology of the decision in ways that reduce some biases. Research has shown that when people make decisions for others, for example, they hone in on the most important aspect of the decision and are thus less swayed by extraneous factors that could bias the decision. Studies of toddlers, for instance, have shown that they make less impulsive decisions for others than they do for themselves.
In this article, we test whether making a recommendation changes the ways that physicians think about medical decisions. Specifically, we conducted 2 randomized experiments in which we ask physicians to decide which treatment they would choose if they themselves were the patient or which treatment they would recommend to a patient facing the same decision. Both experiments were designed to test for the presence of well-established cognitive biases. Thus, by conducting these randomized experiments, we can determine whether the act of making recommendations changes physicians’ decisions.

**METHODS**

**OVERVIEW**

We surveyed 2 random samples of primary care physicians in the United States and presented each with 1 of 2 hypothetical scenarios (described herein). For each decision, we created scenarios in which, at least arguably, 1 alternative dominated the other, conferring a lower risk of mortality in exchange for a treatment complication that most respondents in a previous investigation viewed as being preferable to death.15

We randomized physicians to receive a self version of the scenario, in which they imagined themselves as a patient facing the decision, or a recommendation version, in which they imagined themselves recommending a treatment option to a patient. We predicted that the choice of the lower-mortality alternative would be significantly more likely when physicians made treatment recommendations for a patient than when they made choices for themselves.

**STUDY POPULATION**

We selected 2 random samples of general internists and family medicine physicians listed in the American Medical Association (AMA) Physician Masterfile. The AMA Masterfile is the most complete available listing of US physicians and is not limited to AMA members. We mailed each physician an initial survey and then sent a follow-up survey to each nonresponder.

**COLON CANCER SCENARIO**

As part of a multipurpose survey of physicians, we selected 500 of them to receive a colon cancer scenario in which they were asked to imagine that either they or one of their patients was diagnosed as having colon cancer and faced a choice between 2 operations to treat the cancer (Table 1). The choices were described in the following way:

**Surgery 1**

Surgery 1 cures colon cancer without any complications in 80%, or 80 out of 100 patients. Surgery 1 does not cure the colon cancer in 16%, or 16 out of 100 patients, and these patients die of colon cancer within 2 years.

In addition,
- 1%, or 1 out of 100 patients, are cured of their cancer but must undergo a colostomy.
- 1%, or 1 out of 100 patients, are cured of their cancer but experience chronic diarrhea.
- 1%, or 1 out of 100 patients, are cured of their cancer but experience intermittent bowel obstruction.
- 1%, or 1 out of 100 patients, are cured of their cancer but experience a wound infection.

**Surgery 2**

Surgery 2 cures colon cancer without any complications in 80%, or 80 out of 100 patients. Surgery 2 does not cure the colon cancer in 20%, or 20 out of 100 patients, and these patients die of colon cancer within 2 years.

This choice involves a trade-off between the risk of death and the chance of 4 surgical complications. The best choice in this circumstance depends on the relative value a given patient places on avoiding these complications vs reducing his or her chance of death. Previously, some of us15 determined that more than 90% of respondents would prefer each of the 4 surgical complications to facing death. To be consistent with these preferences, we would expect less than 10% of patients to choose Surgery 2. Yet, because of the strong emotions created when contemplating complications such as colostomies and wound infections, most respondents choose Surgery 2.15

The present study tests whether the act of making a recommendation changes this particular decision. We did so by randomizing physicians so that half were asked to make a treatment recommendation to a patient instead of choosing for themselves. Our primary outcome measure was the physician’s treatment choice or recommendation.

**AVIAN INFLUENZA SCENARIO**

As part of a second, larger survey project powered specifically to detect self-to-other differences, we selected a different sample of 1600 primary care physicians to receive an avian influenza scenario. In this hypothetical scenario, physicians were asked to imagine that a new strain of avian influenza had recently arrived in the United States. One group of physicians was asked to imagine that they themselves had been infected with the virus and a different group was asked to imagine that his or her patient had been infected. The participants were informed that an immunoglobulin treatment was available to treat this virus and they were provided with the following information:

**Without Immunoglobulin Treatment**

People who contract the flu virus have a 10% death rate from the flu and a 30% hospitalization rate, with a 1-week average length of stay.

**With Immunoglobulin Treatment**

The immunoglobulin treatment has been tried out in several hundred volunteers in both Asia and Europe, and cuts the chance of adverse events from the virus in half. This means that, with treatment, we would expect to observe a 3% death rate from

**Table 1. Colon Cancer Scenario: Summary of Treatment Outcomes**

<table>
<thead>
<tr>
<th>Possible Outcome</th>
<th>Surgery 1</th>
<th>Surgery 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cured without complication</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Cured, but has colostomy</td>
<td>1</td>
<td>. . .</td>
</tr>
<tr>
<td>Cured, but has chronic diarrhea</td>
<td>1</td>
<td>. . .</td>
</tr>
<tr>
<td>Cured, but experiences intermittent bowel obstruction</td>
<td>1</td>
<td>. . .</td>
</tr>
<tr>
<td>Cured, but has a wound infection</td>
<td>1</td>
<td>. . .</td>
</tr>
<tr>
<td>No cure, death</td>
<td>16</td>
<td>20</td>
</tr>
</tbody>
</table>

Abbreviation: ellipses, not applicable.
Table 2. Avian Influenza Scenario: Summary of Treatment Outcomes

<table>
<thead>
<tr>
<th>Possible Outcome</th>
<th>Without Immunoglobulin Treatment</th>
<th>With Immunoglobulin Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death from the flu</td>
<td>10% of patients</td>
<td>5% of patients</td>
</tr>
<tr>
<td>Death from treatment</td>
<td>. . .</td>
<td>1% of patients</td>
</tr>
<tr>
<td>Permanent paralysis from treatment, usually legs</td>
<td>. . .</td>
<td>4% of patients</td>
</tr>
<tr>
<td>Hospitalization, 1 wk, from the flu</td>
<td>30% of patients</td>
<td>15% of patients</td>
</tr>
</tbody>
</table>

Abbreviation: ellipses, not applicable.

Table 3. Respondent Characteristicsa

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Respondents by Scenariob</th>
<th>Colon Cancer (n=242)</th>
<th>Avian Influenza (n=698)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD), y</td>
<td>47.6 (10.9)</td>
<td>49.9 (10.5)</td>
<td></td>
</tr>
<tr>
<td>Year of graduation from medical school, mean (SD)</td>
<td>1982.9 (10.8)</td>
<td>1986.4 (10.7)</td>
<td></td>
</tr>
<tr>
<td>Patients/wk, mean (SD)</td>
<td>95.9 (50.6)</td>
<td>91.4 (47.2)</td>
<td></td>
</tr>
<tr>
<td>Female sex</td>
<td>30.4</td>
<td>29.0</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>73.1</td>
<td>75.1</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>3.7</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>17.7</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td>Other or mixed</td>
<td>4.9</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>Hispanic ethnicity, any race</td>
<td>4.6</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>Type of medical degree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD</td>
<td>86.7</td>
<td>89.4</td>
<td></td>
</tr>
<tr>
<td>DO</td>
<td>11.6</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>1.7</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Type of practice setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solo</td>
<td>27.7</td>
<td>21.1</td>
<td></td>
</tr>
<tr>
<td>Small group private, ≤4 physicians</td>
<td>19.7</td>
<td>23.4</td>
<td></td>
</tr>
<tr>
<td>Large group private, &gt;4 physicians</td>
<td>25.6</td>
<td>29.0</td>
<td></td>
</tr>
<tr>
<td>Staff-model HMO</td>
<td>3.4</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Academic medical center–based</td>
<td>7.1</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Public or government-based</td>
<td>6.3</td>
<td>6.9</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>10.1</td>
<td>7.0</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: DO, doctor of optometry; HMO, health maintenance organization; MD, doctor of medicine.

a Percentages may not total 100 because of rounding.

b Reported as percentage except where indicated.

Figure. Percentage of physicians selecting the option with the higher mortality rate. For the colon cancer scenario, $\chi^2 = 4.67, P = .03$; for the avian influenza scenario, $\chi^2 = 14.56, P < .001$.

proximately 12 physicians, all stated that life with paralysis of the legs was preferable to death).

COVARIATES

In both surveys, respondents provided their age, sex, race/ethnicity, the year they graduated from medical school, the type of medical degree earned, the type of practice setting, the average number of patients they see per week, and the ways they allocate their time across professional activities (eg, direct patient care, teaching).

DATA ANALYSIS

All data were double-entered by separate research assistants, with discrepancies in data entry rectified by a review of the original survey responses. We used $\chi^2$ tests to compare choices in the self vs recommendation groups. We performed multivariate logistic regression analysis, with choice as the dependent variable and version as the primary independent variable, to assess whether observed differences in choices persisted after adjusting for respondent age, sex, and volume of patient care.

RESULTS

Characteristics of the respondents are shown in Table 3. None of these characteristics differed across physicians randomized to receive the 2 versions of each scenario ($P > .1$ for all).

COLON CANCER SCENARIO

A total of 242 physicians returned the colon cancer questionnaire (response rate, 48.4%). As shown in the Figure, when asked to imagine that they themselves had colon cancer, 37.8% of physicians chose Surgery 2, the procedure with a higher mortality rate (and a lower rate of adverse effects). By contrast, when asked to make a recommendation for a patient, only 24.5% of physicians chose this surgery ($\chi^2 = 4.67, P = .03$). Results of multivariate logistic regression analysis confirmed that the perspective of the physician (whether assuming the role of patient or recommending physician) significantly influenced treatment choice (odds ratio, 0.55; 95% confidence interval, 0.31-0.99), but choice was not associated with respondent age, sex, or volume of patient care.
AVIAN INFLUENZA SCENARIO

A total of 698 physicians returned the avian influenza questionnaire (response rate, 43.6%). As shown in the Figure, when asked to imagine that they had contracted avian influenza, 62.9% of physicians chose to forgo the lifesaving benefits of immunoglobulin treatment to avoid its adverse effects. By contrast, when asked to make a recommendation for a patient, only 48.5% made this choice ($\chi^2$, 14.56; $P < .001$). Results of multivariate logistic regression analysis showed that the perspective of the physician significantly influenced the treatment choice (odds ratio, 0.55; 95% confidence interval, 0.41-0.75), but choice was not associated with respondent age, sex, or volume of patient care.

COMMENT

Our study shows that physicians choose different treatments for themselves than they would recommend to their patients. The act of making a recommendation changes the psychological processes influencing their decisions, causing them to place different weights on treatment outcomes than they would place if they were making a choice for themselves.

Our study does not show, however, when or whether the act of making recommendations improves decision making. In the scenarios we studied, we were able to test whether physicians would be susceptible to well-known cognitive biases, ie, psychological processes that potentially interfere with optimal decision making. We discovered that physicians were less susceptible to these biases when they made recommendations to hypothetical patients. But this reduction in susceptibility to biases may not hold for all biases. At most, our study suggests that in some circumstances, the act of making a recommendation might improve decision making.

Psychologists who specialize in decision-making cognitive processes have discovered many biases that interfere with the abilities of individuals to make optimal decisions. A few such biases are relevant to the scenarios used in our study. First, individuals are influenced by betrayal aversion—a feeling that harm caused by something designed to prevent harm is worse than identical harm that does not involve such betrayal. For example, being injured by an airbag that inflates at an inappropriate time is perceived as being worse than an identical injury caused in an automobile crash in which an airbag does not inflate.16 In the avian influenza scenario, the 1.0% risk of death and 4.0% risk of paralysis, outcomes that could potentially be caused by the immunoglobulin treatment, an intervention intended to prevent harm, could be seen as worse than the harm potentially caused by the virus itself. Similarly, in the colon cancer scenario, the surgical complications, while potentially caused by the virus itself. Similarly, in the colon cancer scenario, the surgical complications, while preferable to death, may have triggered a sense of betrayal aversion.

In addition, the avian influenza scenario could have triggered omission bias—the tendency to judge harm that results from taking an action (a “commission”) as being worse than harm that comes from not taking an action (an “omission”).17 People anticipate more regret from the former sort of harm and consider such commissions to be morally worse than corresponding omissions, even when intentions are held constant.17,18 In the avian influenza scenario, omission bias may have inclined people to forgo the treatment.

Previous research has shown that when people make recommendations for others, they tend to focus on a single dimension of the alternatives,19 typically on the aspect of the decision that is easiest to defend. In both our scenarios, this dimension amounted to comparing whether death was worse than any of the treatment adverse effects. By focusing on this trade-off, physicians were not as easily influenced by omission bias or betrayal aversion and thus tended to recommend the alternative that reduced mortality. In addition, when making recommendations, decision makers may overcome influences such as betrayal aversion and strong emotions because they want their decision to be publically defensible.

By contrast, when choosing for themselves, the decisions made by individuals are influenced by a broader array of factors.19 And because those individuals do not necessarily have to justify their choice to others, they may be more susceptible to cognitive biases, such as betrayal aversion and omission bias.

Our study does not suggest that physicians always make better decisions for others than they would make for themselves. Sometimes, focusing on a broad array of relevant factors is essential to selecting the optimal choice. Indeed, the best choice in each of the 2 study scenarios is debatable. Most physicians, when deciding for themselves, chose not to receive the immunoglobulin treatment for avian influenza, for example. We cannot say for sure that such a choice was irrational. The immunoglobulin treatment may have appeared to be new and its efficacy uncertain to physicians.

But regardless of whether avoidance of the immunoglobulin treatment was irrational, our study demonstrates that physicians’ decisions are significantly influenced by their perspective—they make different decisions for themselves than they recommend to others. In both our scenarios, these differences led physicians to recommend the higher-survival option to patients more often than they chose it for themselves.

Our study has several limitations. First, it relies on hypothetical scenarios and, thus, does not capture the ways that physicians make decisions regarding real treatments. Nevertheless, the use of hypothetical scenarios allowed us to focus on well-established cognitive biases. And by avoiding scenarios that mirror real-world decisions, we avoided having our results influenced by factors such as habit, convention, or past experience.

Second, our surveys are susceptible to nonrespondent bias. However, we do not claim that the responses we received are representative of the opinions of all primary care physicians. Instead, because we conducted a randomized experiment, we can confidently conclude that the differences we see across participants—the self group vs the recommendation group—are not a result of chance but reflect the different thought processes triggered when physicians imagine themselves as physicians vs as patients.
In conclusion, when physicians make treatment recommendations, they think differently than when making decisions for themselves. In some circumstances, making recommendations could reduce the quality of medical decisions. In at least some circumstances, however, such as when emotions interfere with optimal decision making, this change in thinking could lead to more optimal decisions. In debating when it is appropriate for physicians to make treatment recommendations to their patients, we must now recognize that the very act of making a recommendation changes the way physicians weigh medical alternatives.

Accepted for Publication: November 4, 2010.
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Author Contributions: Dr Ubel had full access to all 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: Ubel and Zikmund-Fisher. Acquisition of data: Ubel and Zikmund-Fisher. Analysis and interpretation of data: Angott and Zikmund-Fisher. Drafting of the manuscript: Ubel and Angott. Critical revision of the manuscript for important intellectual content: Zikmund-Fisher. Statistical analysis: Angott. Obtained funding: Ubel and Zikmund-Fisher. Administrative, technical, and material support: Angott.

Financial Disclosure: None reported.

Funding/Support: This study was funded by grant R01 CA087595 from the National Institutes of Health (Dr Ubel), career award MRSF-06-130-01-CPPB from the American Cancer Society (Dr Zikmund-Fisher), a National Science Foundation Graduate Research Fellowship (Dr Angott), and a Robert Wood Johnson Health Policy Investigator Award (Dr Ubel).

Additional Contributions: We gratefully acknowledge Nicole Exe, MPH, and Valerie Kahn, MPH, for their assistance.

REFERENCES


INVITED COMMENTARY

Reconciling Physician Bias and Recommendations

In the era of patient-centered care, some argue that physicians should refrain from advising patients or recommending a treatment course and instead should neutrally present all the options and leave the final decision making exclusively to patients. We and others think that in a strong physician-patient relationship, physicians should use their medical knowledge and experience to make recommendations to help patients make better-informed choices regarding their treatment. Patients may be the ultimate decider of which treatment to initiate but they need physician expertise and guidance to make the best choices.

In this issue of the Archives, Ubel and colleagues explore the interesting question of whether physicians’ recommendations for their patients differ from the decisions they would make for themselves. Why did some physicians make different decisions for themselves than those they recommended to their patients in the 2 hypothetical scenarios presented in the article? The authors concluded that physicians’ recommendations for others may be less susceptible to cognitive bias compared with decisions they make for themselves. We would argue that the cognitive biases expressed by physicians when thinking clinically for their patients are not less but different than their biases when thinking of themselves in the patient role. They rightly identify some of the potential conflicts. For example, the relative emphasis on maximizing length of life vs maximizing quality of life may look very different from the vantage points considered by the physicians for themselves than when advising patients.