

By Peter J. Neumann, Jennifer A. Palmer, Eric Nadler, ChiHui Fang, and Peter Ubel

doi: 10.1377/hlthaff.2009.0077
HEALTH AFFAIRS 29,
NO. 1 (2010): 196–202
©2010 Project HOPE—The People-
to-People Health Foundation, Inc.

Cancer Therapy Costs Influence Treatment: A National Survey Of Oncologists

Peter J. Neumann

(pneumann@tuftsmedicalcenter.org) is the director of the Center for the Evaluation of Value and Risk in Health, Institute for Clinical Research and Health Policy Studies, Tufts Medical Center, in Boston, Massachusetts.

Jennifer A. Palmer is a research associate in the Center for the Evaluation of Value and Risk in Health, Institute for Clinical Research and Health Policy Studies, at Tufts Medical Center.

Eric Nadler is a physician at the Baylor University Medical Center in Dallas, Texas.

ChiHui Fang is a research associate in the Center for the Evaluation of Value and Risk in Health, Institute for Clinical Research and Health Policy Studies, at Tufts Medical Center.

Peter Ubel is director of the Center for Behavioral and Decision Sciences and Medicine at the University of Michigan in Ann Arbor.

ABSTRACT A national survey of medical oncologists indicates that rising cancer treatment costs are influencing clinical practice, even as oncologists tend not to communicate with patients about costs. The survey shows that 84 percent of oncologists say that patients' out-of-pocket spending influences treatment recommendations. Only 43 percent always or frequently discuss costs with patients. Among those surveyed, 79 percent favor more comparative effectiveness research; 80 percent support more cost-effectiveness data, although only 42 percent feel well prepared to interpret it. The results suggest that physicians support federally funded comparative effectiveness research but that they wish to retain a central role in making decisions about how and when to use expensive cancer treatments. The results also support educating physicians about cost-effectiveness and how to communicate with patients regarding cost.

New cancer medications offer hope to patients with terminal illnesses. Yet spending on cancer medications has risen 14 percent annually in recent years¹ and can total tens of thousands of dollars per year for some patients. Out-of-pocket spending for cancer patients has been increasing sharply, especially for low-income people, who spend about 27 percent of their yearly income on such expenses.^{2,3} When confronted with the reality of high out-of-pocket expenses, patients may forgo expensive therapies or discontinue treatments, in part because they do not want to saddle their families with unmanageable debt.^{2,4}

The merits of expensive new cancer treatments are debated in the medical literature and the popular news media.^{4–6} The debates focus not only on the costs of these treatments, but also on their relatively modest benefits, which are often on the order of a few weeks or months of increased life expectancy.

Oncologists are positioned in the middle of these debates, forced to decide whether the cost of treatment, to the patient and to society overall,

is justified by the benefit. Despite this, little is known about their attitudes toward cancer costs, their beliefs about whether costs influence their prescribing, and their comfort and readiness to make such decisions. We conducted a national survey of U.S. oncologists to investigate these issues.

Study Data And Methods

THE SURVEY We developed a questionnaire to assess oncologists' attitudes toward various aspects of cancer costs and the cost-effectiveness of treatments. We also assessed oncologists' views regarding potential policies related to cost sharing and to the use of comparative effectiveness and cost-effectiveness information.

The survey required approximately fifteen minutes to complete. Respondents were assured of anonymity and confidentiality. All appropriate institutional review board arrangements were met. The survey stated that the research was being conducted by university-affiliated researchers and was sponsored by a nonprofit foundation.

THE SAMPLE The survey was conducted with the knowledge and support of the American Society of Clinical Oncology (ASCO), which provided us with a national list of U.S.-based oncologists and envelopes for free, but with no other financial support. The sample contained a randomly selected list of 1,200 oncologists plus an oversample of 200 oncologists from California.⁷ After duplicate names and incorrect addresses were removed, the final sample included 1,379 individuals.⁸ A cover letter to the survey included the ASCO logo, along with the logos of the University of Michigan and Tufts Medical Center. We provided financial incentives to respondents to enhance response rates.⁹

FIELDING THE SURVEY All respondents were surveyed via the U.S. mail between January and March 2008 for a pilot test, and between May and August 2008 for the full survey.¹⁰

Results

The survey was completed and returned by 787 of the 1,379 oncologists (a response rate of 57 percent). Exhibit 1 provides sample characteristics weighted to the ASCO population (as were all other analyses).

INFLUENCE OF COSTS ON TREATMENT RECOMMENDATIONS Oncologists reported that they were actively considering costs in their prescribing decisions: Although 67 percent stated that every U.S. patient should have access to effective cancer treatment regardless of cost, 56 percent of respondents strongly or somewhat agreed that costs influence their decisions regarding which cancer treatments to recommend for their patients. Among those surveyed, 84 percent stated that patients' out-of-pocket expenses influence their decisions (Exhibit 2). Moreover, 73 percent agreed with the statement that "over the next 5 years, costs of new cancer drugs will play a

EXHIBIT 1

Characteristics Of The Study Sample Of Oncologists, 2008

Mean age (years)	50 (range: 29–80)
Sex	
Male	75%
Female	25
Practice setting ^a	
Hospital-based	25%
Group-based	43
Solo	7
Veterans Affairs	3
Academic	34
Other	6
Region	
Northeast	25%
North Central	19
South	35
West	20
Board certified in oncology	
Yes	90%
No	10
Type of cancer they treat ^a	
Breast	71%
Gastrointestinal	69
Genitourinary	63
Gynecological	50
Head and neck	60
Hematological	63
Lung	68
Melanoma	55
Sarcoma	51
Other cancer	16
Mean percent of patients with Medicaid	19%
Mean percent of patients in clinical trials	14
Mean percent of time doing clinical work	77
Mean percent of income that depends on clinical revenue	62

SOURCE Tufts Medical Center and University of Michigan Survey of Medical Oncologists, 2008 Aug. *N* = 787. ^aNot mutually exclusive.

EXHIBIT 2

Oncologists' Views On Cancer Drugs' Costs And Cost-Effectiveness, 2008

Question	Percent stating "strongly or somewhat agree"
The costs of new cancer drugs currently influence my decisions regarding which cancer treatments to recommend for my patients	56%
Patients' "out-of-pocket" drug costs currently influence my decisions regarding which cancer treatments to recommend for my patients	84
Over the next 5 years, costs of new cancer drugs will play a more significant role in my decisions regarding which cancer treatments to recommend for my patients	73
I feel well prepared to interpret and use cost-effectiveness information in my treatment decisions	42
Every U.S. patient should have access to effective cancer treatments regardless of their cost	67
Every U.S. patient should have access to effective cancer treatments only if the treatments provide "good value for money" or are cost-effective	58
Percent frequency	
How often do you discuss the costs of new cancer treatments with your patients?	
Always	7%
Frequently	36
Occasionally	37
Rarely	17
Never	3
What do you think is a reasonable definition of "good value for money" or cost-effectiveness per life-year gained?	
\$0-\$50,000 per life-year	21%
\$50,001-\$100,000 per life-year	49
\$100,001-\$150,000 per life-year	19
\$150,001-\$200,000 per life-year	6
>\$200,000 per life-year	5

SOURCE Tufts Medical Center and University of Michigan Survey of Medical Oncologists, 2008 Aug.

more significant role in my decisions regarding which cancer treatments to recommend for my patients."

In terms of cost-effectiveness, 58 percent stated that patients should have access to effective cancer treatment only if the treatments are cost-effective or provide good value for money. With respect to what respondents consider a reasonable definition of "good value for money," the most popular response (49 percent) was \$50,001-\$100,000 per life-year gained (Exhibit 2).¹¹ However, only 42 percent said that they feel well prepared to interpret and use information about cost-effectiveness in their treatment decisions. Forty-three percent of respondents said that they always or frequently discuss cancer treatment costs with their patients, while 37 percent said they do so occasionally and 20 percent, said rarely or never.

ATTITUDES ABOUT GOVERNMENT POLICIES Most oncologists (64 percent) agreed with the statement that Medicare reimbursement rules for oral chemotherapy limit their ability to offer these therapies to their patients.¹² Twenty-nine percent stated their belief that more cost sharing by patients is needed. Respondents generally be-

lieved that more government intervention is warranted in cancer care. Fifty-seven percent agreed that more government price controls for cancer drugs for Medicare are needed; 79 percent favored more government research on the comparative effectiveness of cancer drugs (Exhibit 3). Eighty percent favored more use of cost-effectiveness data in coverage and payment decisions for cancer drugs.

In terms of who they believe should determine whether a drug provides good value for money, most respondents said that physicians (60 percent) followed by nonprofit organizations (57 percent), patients (37 percent), government (21 percent), and insurance companies (6 percent) (choices were not mutually exclusive; Exhibit 3).¹³

Discussion

In the face of rapidly rising treatment costs, the majority of U.S. oncologists who responded to our survey indicate that such costs are influencing their clinical practice. At the same time, they often feel ill-equipped to interpret and use economic information when making clinical deci-

EXHIBIT 3

Oncologists' Views On Various Health Policies, 2008

Question	Percent stating "strongly or somewhat agree"
Medicare's reimbursement rules for oral chemotherapy have limited my ability to offer these therapies to my patients	64%
Government price controls for cancer drugs for Medicare are needed	57
More cost-sharing by patients of payment for cancer drugs is needed	29
More use of cost-effectiveness data in coverage and payment decisions for cancer drugs is needed	80
More government research on the comparative effectiveness of cancer drugs is needed	79
Percent frequency	
Who do you believe should determine whether a drug provides good value? ^a	
Government	21%
Nonprofit	57
Insurance company	6
Physicians	60
Patients	37
Other	5

SOURCE Tufts Medical Center and University of Michigan Survey of Medical Oncologists, 2008 Aug. ^aNot mutually exclusive.

sions. The oncologists we surveyed believe doctors should play an important role in making decisions about how and when to use expensive cancer treatments. Yet many also want the government to play a more active role in determining the appropriate way to use these therapies.

THE CENTRALITY OF COSTS AS A MODERN-DAY CONCERN Our study underscores the importance of cancer treatment costs as a discomfiting reality among U.S. oncologists. Other surveys report a similar sense of discomfort and unease in the oncology community, as physicians struggle with their professional roles to balance the needed care and the limited resources of their patients and society. In a survey of ninety academic medical oncologists in Boston, Eric Nadler and colleagues reported similarly high percentages of respondents who stated that out-of-pocket expenses influence their decisions, while maintaining that all patients should have access to effective treatments.¹⁴ Deborah Schrag and Morgan Hanger,¹⁵ reporting on a survey of 167 oncologists, found that most oncologists believe it important to be explicit with patients about costs but that only 16 percent acknowledge omitting treatment because of costs.

THE NEED FOR BETTER COMMUNICATION BETWEEN PHYSICIANS AND PATIENTS Despite their concern over cost, relatively few oncologists state that they discuss the costs of new cancer treatments with their patients. This finding mirrors other research on the topic. Researchers report that oncologists—and physicians in general—believe

that communication is important. They also report that patients desire to talk with their physicians about out-of-pocket expenses, but that such conversations remain uncommon.¹⁵⁻¹⁷

Why don't physicians and patients discuss cost more often? We suspect that most physicians are uncomfortable with the subject. The lack of communication may also reflect an absence of accurate knowledge about the actual costs and the extent of insurance coverage for drugs.¹⁸ Physicians also report having insufficient time to discuss costs with patients, and a belief that they do not have a solution to offer them.^{15,19} Possibly, the lack of communication reflects oncologists' sense that most patients are well insured for the costs of their cancer care. However, rising patient cost-sharing requirements, caps on benefits, and loss of employment opportunities because of patient illness make it less likely that this is always true.^{20,21} Other research finds that patients are reluctant to raise the issue of cost because they feel awkward addressing the topic and have concerns about how discussing cost might affect on quality of care.^{2,19}

These findings underscore the need to educate physicians about treatment costs, patients' circumstances, and patients' values and the need to explore and implement communication strategies.^{15,18,19,22} Importantly, recent initiatives by patient advocacy organizations and oncologists' professional organizations have begun to develop strategies to guide physicians and patients in communicating about cost. These include the

development of educational resources to help oncologists address cost-of-care issues with patients and to integrate information about therapies with patient preferences.² Developing better ways to communicate information about the cost-effectiveness of treatments will also be important.²³⁻²⁵

SUPPORT FOR COMPARATIVE EFFECTIVENESS RESEARCH Our survey reveals frustration among oncologists with the status quo and a willingness to experiment with various policy solutions. A majority of respondents favor government price-control authority for Medicare.

Moreover, most respondents support the idea of more research on the comparative effectiveness of cancer therapies. The results suggest that federally funded comparative effectiveness research will be received favorably in the oncology community. This finding has special relevance in light of the recent American Recovery and Reinvestment Act, which provides \$1.1 billion to fund comparative effectiveness research, and in light of provisions of health reform legislation that would expand the research even further.²⁶

Although the survey responses represent the viewpoints of only one group of physicians, they do suggest some lessons for policymakers in how to frame comparative effectiveness research. For one, they suggest that although oncologists favor a strong role for government in providing analyses, they believe that physicians—and to a lesser extent patients—should retain decision-making authority in deciding whether individual drugs should be used.

For another, the results support more cost-effectiveness research. Once again, however, they highlight that oncologists believe the government's role should involve providing research findings but should stop short of mandating decisions. Although a large majority of oncologists support cost-effectiveness research, only a small minority support a government role in deciding what care constitutes good value for money.

Some other surveys find evidence of support among physicians for cost-effectiveness information.²⁷ Schrag and Hanger¹⁵ report, for example, that two-thirds of oncologists agree that part of the oncologist's role when making recommendations is to consider cost-effectiveness. Perhaps these results, along with ours, reflect a sign of growing support for cost-effectiveness analysis, especially with the advent of expensive drugs with relatively modest benefits. There have been increasing calls for oncologists to avoid treating all cancer therapies as equally necessary but instead to weigh relative value.²⁸⁻³¹ In some coun-

tries, such as the United Kingdom, health authorities have recommended against certain cancer drugs on the grounds that the drugs are not cost-effective.³²⁻³⁴ It is unclear who would determine value in the United States, although our survey revealed support among oncologists for a non-profit institute.

Limitations

Our study has a number of limitations. Although the response rate was high for surveys of this kind, it raises some questions about the representativeness of the sample. Oncologists who chose to respond to our survey may be different from those who did not, although it is not obvious what form the bias would take. In addition, ASCO-affiliated oncologists, who constituted the sample, might not be entirely representative of practicing U.S. oncologists.³⁵

The Road Ahead

Until now, a mentality has persisted among drug companies that they can charge tens of thousands of dollars per year for drugs because the market will bear it, regardless of the degree of patient response or the type of cancer.³⁶ To an unknown extent, the recent economic slowdown, as well as future competition among drug firms, may drive down prices.⁴

Already some biopharmaceutical companies are placing caps on spending for cancer drugs at \$55,000 per patient a year, or are limiting expenses to some percentage (such as 5 percent) of a patient's gross income.^{37,38} Payers, including the Medicare program, are implementing "coverage with evidence development" policies, requiring patients to participate in clinical trials or registries to help ensure that expensive drugs are delivered only to appropriate patients.³⁶ In recent years, Congress changed the way Medicare reimbursed physicians for chemotherapy drugs in an attempt to remove incentives for physicians to provide aggressive and costly treatments and to instill incentives for them to make choices based more on clinical considerations and patients' preferences.³⁹ Other changes for Medicare are under way or under discussion, from moving away from separate billing for each individual service to increasing the focus on the quality of care provided under the program.⁴⁰

Oncologists clearly feel ill prepared to sort out cost issues on their own. It will be important to resurvey oncologists over time as changes are implemented, and to study the attitudes of patients, not just of physicians. ■

Support for this project was provided by a grant from the California HealthCare Foundation. The authors are grateful to Jill Yegian for helpful comments, to Hannah Auerbach for research

assistance, and to Robin Ruthazer and Yoojin Lee for statistical assistance. They are grateful to the American Society of Clinical Oncologists for providing its list of U.S.-based

oncologists. An earlier version of this article was a poster presentation at the ISPOR 14th Annual International Meeting, Orlando, Florida, 18 May 2009.

NOTES

- 1 Gatyas G, Longwell L. Norwalk (CT): IMS Health. Press release, IMS Health reports U.S. prescription sales grew 3.8 percent in 2007, to \$286.5 billion. 2008 Mar 12.
- 2 Kim P. Cost of cancer care: the patient perspective. *J Clin Oncol*. 2007;25(2):228–32.
- 3 Langa KM, Fendrick AM, Chernew ME, Kabeto MU, Paisley KL, Hayman JA. Out-of-pocket health-care expenditures among older Americans with cancer. *Value Health*. 2004;7(2):186–94.
- 4 Berenson A. Cancer drugs offer hope, but at huge expense. *New York Times* 2008 Jul 12.
- 5 Kolata G, Pollack A. Costly cancer drug offers hope, but also a dilemma. *New York Times* 2008 Jul 6.
- 6 Schrag D. The price tag on progress—chemotherapy for colorectal cancer. *N Engl J Med*. 2004;351(4):317–9.
- 7 Because of the interests of our funder, the California HealthCare Foundation, we oversampled oncologists from California. To adjust for the sampling strategy, we used poststratification weights in all analyses. All results presented in the paper are weighted to the national ASCO sample. The detailed results are available from the authors upon request; send e-mail to Peter Neumann at pneumann@tuftsmedicalcenter.org.
- 8 We pilot-tested the survey on a random sample of 200 respondents. Because the final survey changed very slightly from the piloted version, we included these respondents in the final analyzed sample.
- 9 In the pretest of 200 respondents, we randomized respondents to receive either \$20 or \$50. After a first mailing in which the incentives were provided, nonrespondents were sent a “second-wave” survey, although with no added incentive. Based on the pretest results, we randomized respondents in the final survey either to receive \$50 in the first mailing and no money in the second mailing, or to receive \$20 in both mailings. Final response rates did not vary as a function of the financial incentive ($p < 0.10$).
- 10 To assure the anonymity of responses, we included both a response envelope and a postcard with the first mailing. Respondents were asked to place their surveys in the envelope and return them to the research team. There was no specific identifying information on these surveys. Separately, respondents were asked to send us a postcard containing identifying information indicating either that they had responded to the survey or that they did not want us to send a second mailing.
- 11 Oncologists who supported lower cost-effectiveness thresholds were more likely to state that access should be restricted to treatments that provided good value for money: 67 percent of those with a threshold of <\$50,000 per life-year (LY) supported restricted access, compared to 61 percent of those with a 50,001–\$100,000/LY threshold and 53 percent of those with a threshold above \$100,000/LY; $p < 0.01$).
- 12 Under Medicare Part D, patients are responsible for cost sharing for oral cancer therapeutics without an IV equivalent. In 2008 (the year of our survey), cost sharing for Medicare patients under Part D was 25 percent up to \$2,510 after a \$275 deductible. No coverage was provided for drugs costs between \$2,510 and \$5,726. After a total drug cost of \$5,726, coverage resumed and the patient’s copay was 5 percent or \$2.25/\$5.60, varying by the drug. Medicare beneficiaries’ out-of-pocket expenses for cancer drugs have risen steadily, with many plans moving brand-name oral cancer drugs to higher formulary tiers requiring high copayments. Avalere Health [Internet]. Washington, D.C.; c2009. Press release, Prescription drug benefits for Medicare patients with cancer to cost more in 2009; 2008 Dec 2008 [cited 2009 Nov 25]; [about 2 screens]. Available from: <http://www.avalerehealth.net/wm/show.php?c=1&id=802>
- 13 In multivariate logistic regression analyses, increased age was an independent predictor of responses to several questions, including the following: the degree to which oncologists were influenced by costs in their cancer treatment decisions ($OR = 1.02$; 95 percent confidence interval: 1.00–1.04; $p = 0.04$); the degree to which oncologists discussed costs with their patients ($OR = 1.04$; 95 percent CI: 1.02–1.06; $p < 0.01$); the extent to which oncologists felt prepared to use cost-effectiveness data in their treatment decisions ($OR = 1.03$; 95 percent CI: 1.01–1.05; $p < 0.01$). Multivariate logistic regression analyses also indicate that oncologists practicing in the Northeast (versus West) U.S. region were less likely to consider costs in their own prescribing ($OR = 0.57$; 95 percent CI: 0.33–0.97; $p = 0.04$) and more inclined to believe that government should apply price controls in Medicare ($OR = 1.87$; 95 percent CI: 1.07–3.27; $p = 0.03$). Female oncologists are less likely than their male colleagues to favor more patient cost sharing ($OR = 0.59$; 95 percent CI: 0.36–0.99; $p = 0.04$). Complete details and results of the multivariate regression analyses are available from the authors upon request.
- 14 Nadler E, Eckert B, Neumann PJ. Do oncologists believe new cancer drugs offer good value? *Oncologist*. 2006;11(2):90–5.
- 15 Schrag D, Hanger M. Medical oncologists’ views on communicating with patients about chemotherapy costs: a pilot survey. *J Clin Oncol*. 2007;25(2):233–7.
- 16 Alexander GC, Casalino LP, Meltzer DO. Patient-physician communication about out-of-pocket costs. *JAMA*. 2003;290(7):953–8.
- 17 Shrank WH, Joseph GJ, Choudhry NK, Young HN, Ettner SL, Glassman P, et al. Physicians’ perceptions of relevant prescription drug costs: do costs to the individual patient or to the population matter most? *Am J Manag Care*. 2006;12(9):545–51.
- 18 Reichert S, Simon T, Halm EA. Physicians’ attitudes about prescribing and knowledge of the costs of common medications. *Arch Intern Med*. 2000;160(18):2799–803.
- 19 Alexander GC, Casalino LP, Tseng CW, McFadden D, Meltzer DO. Barriers to patient-physician communication about out-of-pocket costs. *J Gen Intern Med*. 2004;19(8):856–60.
- 20 Pollack A. As pills treat cancer, insurance lags behind. *New York Times*. 2009 Apr 15.
- 21 Schwartz K, Claxton G, Martin K, Schmidt C. Spending to survive: cancer patients confront holes in the health insurance system. Menlo Park (CA) and Atlanta (GA): Kaiser Family Foundation and American Cancer Society; 2009 Feb 5.
- 22 Korn LM, Reichert S, Simon T, Halm EA. Improving physicians’ knowledge of the costs of common medications and willingness to consider costs when prescribing. *J Gen Intern Med*. 2003;18(1):31–7.
- 23 Doubilet P, Weinstein MC, McNeil BJ. Use and misuse of the term “cost effective” in medicine. *N Engl J Med*. 1986;314(4):253–6.

- 24 Eddy DM. Clinical decision making: from theory to practice. Cost-effectiveness analysis. A conversation with my father. *JAMA*. 1992;267(12):1669–75.
- 25 Ubel PA, Jepson C, Baron J, Hershey JC, Asch DA. The influence of cost-effectiveness information on physicians' cancer screening recommendations. *Soc Sci Med*. 2003;56(8):1727–36.
- 26 The American Recovery and Reinvestment Act of 2009, HR1, (2009).
- 27 Holloway RG, Ringel SP, Bernat JL, Keran CM, Lawyer BL. US neurologists: attitudes on rationing. *Neurology* 2000;55(10):1492–7.
- 28 Earle CC, Chapman RH, Baker CS, Bell CM, Stone PW, Sandberg EA, et al. Systematic overview of cost-utility assessments in oncology. *J Clin Oncol*. 2000;18(18):3302–17.
- 29 Grusenmeyer PA, Wong YN. Interpreting the economic literature in oncology. *J Clin Oncol*. 2007;25(2):196–202.
- 30 Ramsey SD. How should we pay the piper when he's calling the tune? On the long-term affordability of cancer care in the United States. *J Clin Oncol*. 2007;25(2):175–9.
- 31 Sulmasy DP. Cancer care, money, and the value of life: whose justice? Which rationality? *J Clin Oncol*. 2007;25(2):217–22.
- 32 Hirschler B. UK's NICE says “no” to four kidney cancer drugs. *Reuters*. 2008 Jul 8 [cited 2008 Dec 23]; Available from: <http://www.reuters.com/article/rbssPharmaceuticals%20-%20Diversified/idUSL765842520080807>.
- 33 Neumann PJ, Rosen AB, Weinstein MC. Medicare and cost-effectiveness analysis. *N Engl J Med*. 2005;353(14):1516–22.
- 34 Mason AR, Drummond MF. Public funding of new cancer drugs: Is NICE getting nastier? *Eur J Cancer*. 2009;45(7):1188–92.
- 35 ASCO estimates that its membership list contains 75–80 percent of U.S. practicing medical oncologists. Lichter A, personal communication, 2009 May 12.
- 36 Culliton BJ. Insurers and “targeted biologics” for cancer: a conversation with Lee N. Newcomer. *Health Aff (Millwood)*. 2008;27(1):w41–w51.
- 37 Amgen [Internet]. Thousand Oaks (CA): Amgen; c2009. Press release, Amgen introduces comprehensive financial assistance programs for cancer patients; 2006 Sep 27 [cited 2008 Oct 31]. Available from: http://www.amgen.com/media/media_pr_detail.jsp?releaseID=909845.
- 38 Pollack A. Genentech caps cost of cancer drug for some patients. *New York Times*. 2006 Oct 12.
- 39 Jacobson M, O'Malley AJ, Earle CC, Pakes J, Gaccione P, Newhouse JP. Does reimbursement influence chemotherapy treatment for cancer patients? *Health Aff (Millwood)*. 2006;25(2):437–43.
- 40 Bach PB. Costs of cancer care: a view from the Centers for Medicare and Medicaid Services. *J Clin Oncol*. 2007;25(2):187–90.