Is There Such a Thing as a Cancer Treatment That Isn't Worth Its Cost?

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Progress in the fight against cancer over the past two decades has been encouraging, but one of the most impressive results of our medical-industrial complex's investment in cancer research and treatment is the enormous increase in the cost of cancer care. After decades of rising cancer mortality in the U.S., we started to see improvement in the 1990s. Between 1991 (when cancer mortality peaked) and 2007 (the most recent year with data), cancer mortality fell by 17%. Declining rates of tobacco-related cancer deaths as a result of declining smoking rates account for a sizeable chunk of our progress, but we are also seeing progress from earlier diagnosis and better treatments. However, the specter of rising costs may not be sustainable, and often the costs seem wildly disproportionate to the demonstrated benefits. Total spending on cancer care was estimated to be \$125 billion in 2010, and even if costs per patient remain constant, this is projected to rise to \$158 billion in 2020 as a result of the aging of the population [1].

However, costs per patient are not constant. The modest decline in cancer mortality has been accompanied by a dramatic rise in the cost of care. For example, new drugs that resulted in nearly doubling the median survival time of patients with metastatic colorectal cancer from 1 year to almost 2 years were accompanied by a 340-fold increase in drug costs [2]. For localized prostate cancer, new, much more expensive treatments such as proton therapy have been widely adopted with only very scant scientific evidence as to whether or not they produce superior outcomes for patients [3]. For metastatic prostate cancer, the sipuleucel-T vaccine increases survival by a little more than 4 months but costs \$93,000 per patient, whereas the \$400 per month ketoconazole has been replaced by the \$5,000 per month abiraterone with no evidence that it produces superior outcomes. In pancreatic cancer, adding erlotinib to gemcitabine increases overall survival by 10 days, from 5.91 months to 6.24 months, at an additional cost of

>\$4,300 per month. If a patient takes erlotinib for 3.75 months, the median time to progression, then those additional 10 days cost >\$16,000. Imagine going to a doctor with pneumonia and being told that for \$16,000 you could obtain an antibiotic that would extend your life by 10 days.

For metastatic renal cell carcinoma, we have sunitinib (\$9,200 for a 6-week supply), pazopanib (>\$6,000 per month), and bevacizumab (>\$13,000 per month), none of which has been clearly shown to prolong overall survival in a randomized controlled trial, although there is evidence that sunitinib probably results in a 4.6-month overall survival benefit [4]. The end result is that costs associated with the treatment of common cancers can easily reach \$50,000–\$100,000 per drug per patient, and people often use multiple drugs thus multiplying the costs, but without a prolonged life-saving benefit.

These sorts of observations often provoke a protest against rationing, which begs the question, whose money are we spending on health care? As Emanuel and Fuchs argued in the *Journal of the American Medical Association* [5], many Americans believe that someone else is paying for their health care because employers pay the bulk of many worker's health insurance premiums and government-funded programs such as Medicare are paid for with tax dollars [5]. Yet, as they point out, if health care weren't so expensive, then workers would be able to receive higher wages because their benefits would be less expensive. And if Medicare were not so costly, then Americans could pay lower Medicare payroll taxes and receive higher take-home pay. Currently, Medicare does not take the cost of treatments into account when deciding whether or not to pay for them. With Medicare projected to run out of money in the not-too-distant future, the question for U.S. citizens will be how much more they are willing to pay for the program in the form of higher payroll taxes and/or premiums and whether

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or not they want the program to try to limit spending by reducing or eliminating access to costly treatments.

Other harms from high medical costs have been widely discussed. Medical bills are a leading cause of personal bankruptcy and were responsible for >60% of bankruptcy filings in 2007 [6, 7]. High U.S. health insurance costs create a disadvantage for U.S. businesses and a disincentive to manufacture goods within the U.S. As Atul Gawande argued in his commencement address at Harvard Medical School in 2011, we are all affected when tax money for schools budgeted to decrease class sizes is instead diverted to pay for rising health insurance premiums [8]. In view of these adverse consequences of high medical care costs, are U.S. citizens allowed to ask what sort of value they are receiving for their dollars when their dollars are spent on health care?

One obvious difficulty is defining the circumstances under which Medicare, Medicaid, or private insurance would deny coverage for a treatment because the cost was too high relative to the magnitude of benefit. Our society does not appear to be ready to discuss that challenging question. Witness the debate over “death panels” in the recent Congressional consideration of the Obama Health Care plan. A related but only slightly less contentious issue is whether or not to pay for off-label treatments that have no proven benefit.

One way to limit spending without curtailing access to proven treatments would be to require adherence to evidence-based guidelines. A study in this issue of *The Oncologist* investigated the clinical use of bevacizumab for the treatment of patients with metastatic colorectal cancer in Lombardy, Italy, and reported that only ~38% of patients receiving the treatment received it in observance of national evidence-based guidelines [9]. The majority of patients thus received bevacizumab in settings in which there was not yet conclusive data regarding benefit to the patient. An important caveat was the

observation that most of the guideline violations involved the use of bevacizumab as part of second- or third-line treatment for colorectal cancer, an indication that was added to the guidelines after the study period. In this instance, practice patterns anticipated and responded to emerging data before the formal guidelines were amended, emphasizing the need for guidelines to be nimble in adapting to the best available data.

At this time, discussions of controlling medical expenditures are politically fraught and the way forward remains unclear. In the U.S., the use of bevacizumab for breast cancer presented a more contentious example of the difficulty of achieving agreement around guidelines and the challenge of avoiding the appearance of conflict of interest in guideline panels whose members receive funding from industry. Bevacizumab for breast cancer may provide the clearest example of how far the U.S. is from being ready to consider cost when making treatment and treatment-coverage decisions, because bevacizumab has not been shown to result in any increase in length or quality of life, can cost >\$50,000 per patient, and yet remains covered by Medicare and endorsed by the National Cooperative Cancer Network. Continuing such largesse going forward as the population ages and more and more patients have cancer appears impossible given the already daunting costs of our nation’s health care system. We need to realize that it is not someone else’s but rather our own money we are spending on health care, and when we spend it on health care we cannot spend it on other important personal or societal needs. Unless we envision an ever larger portion of our economy dedicated to medicine at the expense of schools, roads, bridges, police, fire fighters, and the take-home pay of working Americans, we need to start demanding greater value for our health care dollars. There needs to be some point at which we say, “No, that treatment is too expensive.”

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