

# KIDNEY CANCER NEWS

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## Cost-Effectiveness in the Surgical Care of Renal Cell Carcinoma

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When it comes to the surgical care of patients with kidney cancer, more is not always better, according to Robert G. Uzzo, MD, of the Fox Chase Cancer Center in Philadelphia, Pennsylvania. In his presentation at the 16th International Kidney Cancer Symposium, “What Is Value and Who Gets to Decide in Renal Cell Carcinoma?” Dr Uzzo stated that patients may undergo medical or surgical treatments that are unlikely to help them, or whose benefits are too small to justify the added costs. That is why patients, physicians, pharmacists, advanced care practitioners, and manufacturers must work together to answer the question of what constitutes value in kidney cancer care.

The “harsh reality” is that medical care is very expensive. Medicare spending accounts for 17% of the gross domestic product, or \$10,000 per person per year—a number that will only increase in the coming years. In some cases, that care is more harmful than helpful. One-third of elderly Americans undergo surgery in their last 12 months of life, mainly in the last month, and 1 in 150 hospitalized patients die of complications—half of which may be preventable.<sup>1-3</sup> Furthermore, the high level of spending on health care has not led to superior outcomes in the United States; countries such as Australia and Japan spend far less, yet life expectancy is longer.<sup>4</sup>

### Progress vs Profit

“When costs go up and benefits go up, we call that progress,” said Dr Uzzo. “But sometimes costs go up and benefits don’t go up or they actually go down—we call that profit.” The move from open surgery to laparoscopy for radical nephrectomy clearly represents progress, he said. What is less clear is whether moving from standard laparoscopy to robotic surgery for radical nephrectomy also represents progress. Other procedures used in ways that might not represent true value and progress include ablation for a small renal mass when surveillance might work and positron emission tomography for the diagnosis of kidney cancer.

All physicians should be familiar with the following equation: value equals patient-centered health outcomes divided by cost. As Brent James, MD, formerly the chief quality officer of Utah-based Intermountain Healthcare, has explained, the goal is to provide the best possible outcome at the lowest necessary cost. It costs money to deliver good care and provide the best possible outcomes. “But if cost goes up and care outcomes don’t go up, then value goes down,” said Dr Uzzo.

### Bundled Payments

The goal of bringing value to health care involves the use of competition to drive innovation. Dr Uzzo cited work by Michael E. Porter, a professor at Harvard Business School, who has written that one way to drive competition is to provide bundled payments to health care providers.<sup>5</sup> Fee-for-service health care rewards quantity over quality, and the use of diagnosis-related groups fails to account for large variations among patients. Bundled payments, by contrast, pay for the life cycle of care.

In addition, some fundamental questions must be answered. First, are all aspects of health care a right? Second, what is the role of government in health care? Third, what is the best way for funds to flow among government, patients, and providers? And finally, how should risk pools be set? “These are the fundamental questions being argued in Washington right now,” said Dr Uzzo. “We need to decide if there’s a maximum price above which society is no longer willing to pay for quality-adjusted life years.”

### The Literature

Several recent studies have shed light on the value of various surgical approaches to kidney cancer. For example, one study in the *World Journal of Urology* found no increase in cost with laparoscopic vs open radical nephrectomy.<sup>6</sup> Such studies are based on retrospective databases, however, and

are not able to provide answers that apply to every specific type of patient. For example, it is still unclear whether the benefits of radical nephrectomy outweigh the risks in elderly patients. Even when studies do reveal differences that are statistically significant, physicians need to determine whether those differences are clinically significant.

These are important questions relevant to an expensive procedure such as robotic nephrectomy, for which the purchase of a piece of equipment that costs nearly \$2 million is required. In addition, the hospital must spend money on drapes, fluorescence imaging, ligatures, sutures, clips, hemostatic agents, sponges, ports, ultrasound, and instruments—all of which can cost an additional \$3000 for each procedure. The smaller incision and the hospital stay that is a day shorter do not necessarily make robotic

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—Robert G. Uzzo, MD

nephrectomy a good value. Dr Uzzo pointed out that the province of Ontario, Canada, recently concluded that the benefits of robotic nephrectomy are not significant enough to justify the cost.

Dr Uzzo said that he and his colleagues at Fox Chase have addressed the question of value in the surgical care of patients with kidney cancer by looking at demographics, cost, and quality. They defined optimal care as a procedure associated with no readmissions, no patient safety indicators, no infections, and no hospital-acquired conditions. Their experience is that “optimal” surgical care is relatively common in prostate cancer; however, it is somewhat less common in bladder cancer because surgical care involves a complicated cystectomy, and in kidney cancer, in which the outcomes of surgical care vary widely. Costs also vary within procedures. For example, the cost of a robotic partial nephrectomy varies according to the costs of laboratory tests, banked blood, and surgical supplies. Data also exist demonstrating that the microvariations in cost between similar cases performed by different physicians do not correlate with better or worse outcomes. “These are opportunities for us to improve value,” Dr Uzzo said.

## Medical Oncology

Several analyses have looked at the topic of value in medical oncology for kidney cancer. A recent economic study by Chinese researchers evaluated the use of nivolumab (Opdivo, Bristol-Myers Squibb) in second-line treatment.<sup>7</sup> CheckMate 025 (Nivolumab versus Everolimus in Advanced Renal Cell Carcinoma) found that nivolumab increased overall survival by 6 months. The analysis showed that nivolumab added 0.29 quality-adjusted life years, at a cost of \$152,000 in the United States and of \$49,000 in China. An important question, said Dr Uzzo, is what caused that difference between countries.

Another area to examine for value in oncology is end-of-life care. A full 15% of patients receive chemotherapy within 14 days of death. Of patients with cancer in this country, 20% die in an intensive care unit, 60% are admitted to a hospital within 30 days of death, and one-third of those younger than 65 years die in a hospital.<sup>8</sup> Dr Uzzo cited data from Daniel M. Geynisman, MD, his colleague at Fox Chase, who identified 9 different first-line treatments used across the United States for kidney cancer that increase costs and variability,<sup>9</sup> whereas in the United Kingdom, the National Institute for Health and Care Excellence is dedicated to selecting the treatments that offer the best value.<sup>10</sup>

The annual wholesale acquisition costs of the drugs commonly used to treat kidney cancer range from approximately \$78,000 to nearly \$200,000. Immunotherapy agents cost approximately \$100,000 per year. “We’re not saying that this doesn’t bring value, but the question is, how do you measure that value?” Dr Uzzo asked. He said that the life expectancy for someone with metastatic kidney cancer has increased from 11 months when he was a resident to more than 3 years today.

The American Society of Clinical Oncology (ASCO), the National Comprehensive Cancer Network (NCCN), the European Society for Medical Oncology (ESMO), Memorial Sloan Kettering Cancer Center, and the Institute for Clinical and Economic Review (ICER) have all weighed in on how to establish value frameworks, each of which differs in emphasis, inputs, and outputs. The NCCN scores systemic therapies for kidney cancer according to their effectiveness (ranging from only palliative to highly effective) and cost (ranging from very expensive to very inexpensive), then provides a grid with the results. “I’m not sure how much it changes what you do, but it’s interesting,” Dr Uzzo said.<sup>11</sup>

Dr Uzzo directed the audience to a website called DrugAbacus, which was discussed in an editorial in the *New England Journal of Medicine*.<sup>12</sup> The website provides information on more than 70 recent cancer drugs and allows users to assign their own value in various domains,

such as adverse events, life expectancy, disease-free survival, and progression-free survival. “You get to adjust based upon what drug you’re using, and it reads out the difference between what your determined value is and what the drug sells for.”

### Shareholders vs Stakeholders

Dr Uzzo also addressed the question of how our society wishes to value shareholders vs stakeholders. He said that shareholders are doing well; for example, someone who invested in a manufacturer of devices for robotic-assisted nephrectomy in 2002 has received a very healthy rate of return. “But in the end, has it fundamentally changed life expectancy and brought value?” he asked. Dr Uzzo said that sometimes devices do and sometimes they do not. “As physicians, it’s our job to know the difference.” Ultimately, it’s the patients—the stakeholders—who matter.

The most important definition of value needs to come from the patients because patients do not always value the same things that physicians do.<sup>13</sup> For example, a recent article found that patients rarely make straightforward trade-offs between survival and side effects. “That was a surprise to me,” said Dr Uzzo, who assumed that most patients would always choose a treatment that offered the longest survival provided it was not highly toxic. “Patients say they’re influenced by a wide variety of contextual factors that we need to consider as physicians.”

### Integrated Multidisciplinary Care

Returning to the question of bundled payments, Dr Uzzo again cited Michael Porter, who has written that building value through bundled payments requires that 5 conditions be met. First, payment must cover the overall cost of the care required to treat a condition. Second, payment must be contingent on the delivery of good outcomes. Third, payment must be risk-adjusted. Fourth, payment must provide a fair profit for effective and efficient care. Finally, providers should not be responsible for unrelated care or catastrophic cases.

Dr Uzzo said that one key to making bundled payments work is providing integrated multidisciplinary care, which is an area that needs improvement. He advised his fellow health care providers to avoid remaining in their discrete silos and instead to be accountable for patient outcomes. The onus is on health care providers to reduce costs, he said, because payments are not going to increase. “Ultimately, if you do this, you deliver better provider-directed, patient-centered care for those with kidney cancer,” he concluded.

### Disclosure

*Dr Uzzo has no relevant disclosures.*

### References

1. Kwok AC, Semel ME, Lipsitz SR, et al. The intensity and variation of surgical care at the end of life: a retrospective cohort study. *Lancet*. 2011;378(9800):1408-1413.
2. de Vries EN, Ramrattan MA, Smorenburg SM, Gouma DJ, Boermeester MA. The incidence and nature of in-hospital adverse events: a systematic review. *Qual Saf Health Care*. 2008;17(3):216-223.
3. Gawande AA, Thomas EJ, Zinner MJ, Brennan TA. The incidence and nature of surgical adverse events in Colorado and Utah in 1992. *Surgery*. 1999;126(1):66-75.
4. Murray CJ, Frenk J. Ranking 37<sup>th</sup>—measuring the performance of the U.S. health care system. *N Engl J Med*. 2010;362(2):98-99.
5. Porter ME, Kaplan RS. How to Pay for Health Care. *Harv Bus Rev*. 2016;94(7-8):88-98, 100, 134.
6. Golombos DM, Chughtai B, Trinh QD, et al. Minimally invasive vs open nephrectomy in the modern era: does approach matter? *World J Urol*. 2017;35(10):1557-1568.
7. Wan XM, Peng LB, Ma JA, Li YJ. Economic evaluation of nivolumab as a second-line treatment for advanced renal cell carcinoma from US and Chinese perspectives. *Cancer*. 2017;123(14):2634-2641.
8. Falchook AD, Dusetzina SB, Tian F, Basak R, Selvam N, Chen RC. Aggressive end-of-life care for metastatic cancer patients younger than age 65 years. *J Natl Cancer Inst*. 2017;109(9).
9. Geynisman DM, Hu JC, Liu L, Tina Shih YC. Treatment patterns and costs for metastatic renal cell carcinoma patients with private insurance in the United States. *Clin Genitourin Cancer*. 2015;13(2):e93-100.
10. Kilonzo M, Hislop J, Elders A, et al. Pazopanib for the first-line treatment of patients with advanced and/or metastatic renal cell carcinoma: a NICE single technology appraisal. *Pharmacoeconomics*. 2013;31(1):15-24.
11. Motzer RJ, Jonasch E, Agarwal N, et al. Kidney Cancer: NCCN Evidence Blocks, Version 2.2018, NCCN Clinical Practice Guidelines in Oncology. [https://www.nccn.org/professionals/physician\\_gls/default.aspx#site](https://www.nccn.org/professionals/physician_gls/default.aspx#site). Updated December 4, 2017.
12. Young RC. Value-Based Cancer Care. *N Engl J Med*. 2015;373(27):2593-2595.
13. Addario BJ, Fadich A, Fox J, et al. Patient value: perspectives from the advocacy community. *Health Expect*. 2017.