In a different study, data from the same administrative data set over the same period was used to measure the rate of conversion from partial to radical nephrectomy. A converted partial nephrectomy was defined as a radical nephrectomy during which mannitol was administered. Mannitol is often administered during partial nephrectomies prior to clamping the renal vasculature for its renal protective effect. It has no role during a planned radical nephrectomy. In the prior study, the unadjusted rate of partial nephrectomy that converted to radical nephrectomy for a robotic approach was 4490 of 33 073 patients (13.6%). In the study by Jeong et al, the raw number of patients undergoing robotic-assisted radical nephrectomy was 5180. If 4490 of these patients actually underwent procedures that were intended to be partial nephrectomies but converted to radical nephrectomies, then only 690 robotic-nephrectomies remained. Summing the number of patients presented in the article’s Figure 1 (48 968) and subtracting the 4490 robotic cases that may have been converted from partial nephrectomies, the proportion of patients undergoing planned robotic-assisted radical nephrectomy would decrease from 10.5% (5180 of 48 968) to 1.5% (690 of 44 478), or nearly a 10-fold difference.

Additionally, if 87% (4490 of 5180) of the robotic-assisted radical nephrectomies in the current study were actually attempted partial nephrectomies, that could bias the degree to which robotic-assisted radical nephrectomies appear more costly and time-consuming. We would be interested in the authors performing a sensitivity analysis excluding radical nephrectomies during which mannitol was administered to discern the potential effect of partial-converted-to-radical nephrectomies.

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such as mean operating time, seems somewhat arbitrary. We fail to see the rationale behind this or any cutoff, as the majority of complex radical nephrectomies will take longer than straightforward cases, making the comparison inherently biased.

The primary cost differential was driven by supply and operating room expenses, each a function of surgical complexity. Additionally, over the last 2 decades, the surgical robotic landscape enjoyed a relatively competition-free marketplace. Within the next few years, new technologies now in development will likely emerge, thereby increasing competition and, as market theory would suggest, decreasing supply, maintenance, and operational costs.

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In Reply Dr Weiner and colleagues suggest that a significant portion of robotic-assisted radical nephrectomies in our study may actually be unsuccessful partial nephrectomies that resulted in conversion to radical nephrectomies. The authors cited a prior study by our group that used the same data set but different methodology.1 This latter study incorporated hospital-specific projection weighting provided by Premier that allowed the results to be extrapolated to a national sample of inpatient discharges. This additional weighting likely increased the sample of converted partial nephrectomies by 500% to 600%. In contrast, due to journal preference, projection weights were not included in our current study. Additionally, the inclusion criteria in the studies differed: the prior study excluded patients not receiving intraoperative mannitol. Thus, a direct comparison between the 2 studies, including the requested sensitivity analysis, is not feasible.

Dr Lubin and colleagues are concerned that surgical complexity was not considered in our study. Robotic-assisted radical nephrectomy has indeed been touted for treatment of complex renal tumors. Although the Premier database does not publish tumor characteristics, we believe that this additional information would not significantly alter the conclusions of our analysis. Large or complex renal tumors such as renal cell carcinoma with vena cava tumor thrombus have largely been treated using open surgery. If robotic-assisted surgery were indeed replacing open surgery for this indication, cases of open radical nephrectomy would be expected to decrease. Yet Figure 1 in our article suggests that the proportion of open radical nephrectomy cases plateaued, and it was the decrease in laparoscopic radical nephrectomies that paralleled the increase in robotic-assisted radical nephrectomies. Although we recognize that robotic-assisted nephrectomies from high-volume surgeons at academic institutions may sometimes include complex tumor characteristics or anatomy, this is likely not true for the majority of urologists in the United States.

Lubin and colleagues also suggest evaluating operating time as a continuous variable. Robotic-assisted radical nephrectomy was associated with a higher mean operating time (259 minutes vs 213 minutes; difference, 46 minutes [95% CI, 29-63]). However, prolonged operating time is believed to be more closely associated with surgery-related complications (ie, surgical-site infection) and was believed to be more clinically meaningful than the comparison of mean values. Our definition of prolonged operating time used the 70th percentile (4 hours), which is similar to established criteria.2 We agree with the authors that the fixed costs associated with robotic surgery may be reduced in the future.3 However, it is likely that robotic-assisted surgery will continue to remain more expensive than laparoscopic surgery.

The introduction of robotic assistance for urological surgery has proven to be an important advancement for the field, yet its careful application will likely contribute to improved patient outcomes and reduced health care costs.

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Prehospital Blood Product Transfusion and Combat Injury Survival

To the Editor Dr Shackelford and colleagues1 reported that prehospital blood product transfusion was associated with improved survival at 24 hours and 30 days during medical evacuation of combat casualties compared with delayed transfusion. Although the study was well constructed, we have several concerns.