We also agree that readers of CEAs need to be cognizant of the moving target phenomenon, whereby the incremental cost-effectiveness ratio from interventions can change over time, an example of which is the left ventricular assist devices (LVADs).⁷ A 2006 UK Health Technology Assessment largely comparing first-generation LVADs as bridge to transplant with medical management in end-stage heart failure patients, found that LVAD placement was more costly and less effective than medical management.⁸ Yet, a 2013 update using second- and third-generation LVADs in similar populations concluded that technological improvements had made newer-generation LVADs more cost-effective.⁹

Despite some of these challenges, the explicit process of formally weighing the risks and benefits, both health and economic, is essential for guiding optimal decision making in a rapidly advancing field like medicine, where budgets remain perennially constrained.

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References

1. Butterworth JF, Cassano AD. The value and generalizability of cost-effectiveness research. *J Thorac Cardiovasc Surg.* 2018;155:1684-5.
2. Poder TG. Challenges to make cost-effectiveness studies usable by decision makers. *J Thorac Cardiovasc Surg.* 2018;156:1931-2.
3. Neumann PJ, Cohen JT. QALYs in 2018—advantages and concerns. *JAMA.* 2018;319:2473-4.
4. Collins M, Latimer N. NICE's end of life decision making scheme: impact on population health. *BMJ.* 2013;346:f1363.
5. Chambers JD, Cangelosi MJ, Neumann PJ. Medicare's use of cost-effectiveness analysis for prevention (but not for treatment). *Health Policy.* 2015;119:156-63.
6. Neumann PJ, Cohen JT, Weinstein MC. Updating cost-effectiveness—the curious resilience of the \$50,000-per-QALY threshold. *N Engl J Med.* 2014;371:796-7.
7. Ferket BS, Oxman JM, Iribarne A, Gelijns AC, Moskowitz AJ. Cost-effectiveness analysis in cardiac surgery: a review of its concepts and methodologies. *J Thorac Cardiovasc Surg.* 2018;155:1671-81.e1611.
8. Sharples LD, Dyer M, Cafferty F, Demiris N, Freeman C, Banner NR, et al. Cost-effectiveness of ventricular assist device use in the United Kingdom: results from the evaluation of ventricular assist device programme in the UK (EVAD-UK). *J Heart Lung Transplant.* 2006;25:1336-43.

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9. Sutcliffe P, Connock M, Pulikottil-Jacob R, Kandala NB, Suri G, Gurung T, et al. Clinical effectiveness and cost-effectiveness of second- and third-generation left ventricular assist devices as either bridge to transplant or alternative to transplant for adults eligible for heart transplantation: systematic review and cost-effectiveness model. *Health Technol Assess.* 2013;17:1-499. v-vi.

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PITFALLS IN COST-EFFECTIVENESS ANALYSIS IN SURGERY

Reply to the Editor:

We thank Dr Poder for his kind remarks about our editorial regarding cost-effectiveness analysis (CEA).^{1,2}

We appreciate his providing examples in which national agencies use differing cost thresholds for a quality-adjusted life year. Going forward, we agree with Pandya³ that CEA may best be used to convert low-value care to cost-effective care by negotiating a better price for drugs and other services. Nevertheless, our fundamental skepticism remains. The validity of CEA depends on the validity of the source data and of the underlying assumptions regarding value. We worry that surgical CEA studies may fail to consider the importance of the skill of the operator. The costs and benefits of the Whipple operation would likely differ greatly when performed by a specialist in hepatic, pancreatic, and biliary surgery who performs 45 such operations per year versus a surgeon who performs 8 such operations per year. Will we merge the data from both surgeons to determine whether the operation is cost-effective versus chemotherapy alone?

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References

1. Poder TG. Challenges to make cost-effectiveness studies usable by decision makers. *J Thorac Cardiovasc Surg.* 2018;156:1931-2.
2. Butterworth JF, Cassano AD. The value and generalizability of cost-effectiveness research. *J Thorac Cardiovasc Surg.* 2018;155:1684-5.
3. Pandya A. Adding cost-effectiveness to define low-value care. *JAMA.* 2018;319:1977-8.

<https://doi.org/10.1016/j.jtcvs.2018.06.012>