Shrime CEA checklist[1]

Assumptions 1. Assumptions are made explicit. 2. Assumptions which bias the ICER downward are avoided	1. ☐ 2. ☐
Analytic perspective and intervention definition 1. The base-case analysis is from the societal perspective. (Other perspectives may be included as secondary results.) 2. Results are report for the intervention studied, including the platform and context for care delivery. 3. Results are not generalized beyond what is explicitly studied.	1. ☐ 2. ☐ 3. ☐
Measuring costs *Which costs to include* 1. Costs to all levels of society are included: a. The health ministry b. The provider/hospital c. The patient's direct medical costs d. The patient's direct non-medical costs. 2. Indirect costs may be included, if available, in secondary analyses. *Fixed costs* 3. Capital costs are annualized across the lifetime of the capital, taking into account resale value and discounting. 4. Labor costs are explicitly detailed or are approximated by the salaries and benefits of the professionals in question. 5. Salaries and benefits of visiting surgeons are included, if they are involved *Variable provider costs* 6. All variable costs are accounted for, including medications, supplies, and operating room time. *Patient costs* 7. Direct medical costs include anything for which a patient has to pay because of surgery 8. Direct non-medical costs include transportation, food, lodging, and "informal payments" necessary to get care. 9. If caregivers commonly accompany patients, their direct costs are included. *Standardizing costs* 10. All costs are represented as international dollars, using GDP deflators and purchasing power parity conversion factors	1. a. ☐ b. ☐ c. ☐ d. ☐ 2. ☐ 3. ☐ 4. ☐ 5. ☐ 6. ☐ 7. ☐ 8. ☐ 9. ☐ 10. ☐

Discounting 11. All future costs are discounted 12. If a life-time time horizon is used for discounting, age- and country-specific life-tables are used to determine life expectancy. *Credibility* 13. The credibility of measured costs is checked against other available data.	11. ☐ 12. ☐ 13. ☐
Measuring effectiveness 1. DALYs averted are the primary measure of effectiveness. 2. Disability weights in the Global Burden of Disease studies are used if available. If the disability weight is unavailable, it is calculated from available data using a multiplicative formulation (see equation (7)). 3. Subjective estimation of disability weights is avoided. 4. The credibility of disability weights estimates is confirmed by comparing against other disability weights of the same magnitude. 5. All future benefits are discounted at the same rate as future costs. 6. Non-age-weighting disability weights are used as the base-case (age-weighting may be treated in scenario analyses)	1. ☐ 2. ☐ 3. ☐ 4. ☐ 5. ☐ 6. ☐
Estimating probabilities 1. Decision trees are used to represent all possible eventualities for patients in the analysis. 2. Probabilities are determined directly from data or from the literature. 3. Simplified and/or subjective probability estimates are avoided.	1. ☐ 2. ☐ 3. ☐
Valuing the counterfactual 1. An incremental cost-effectiveness ratio, against the counterfactual of the status quo, is reported 2. If a simplified, average cost/effectiveness ratio is reported—that is, if the counterfactual is "nothing"—a *strong* case has been made that the studied intervention is never performed in the region of interest.	1. ☐ 2. ☐
Addressing heterogeneity and uncertainty 1. Patient-level data are used to address heterogeneity. If patient-level data are not available, microsimulation methods may be used. 2. All parameters are subjected to one-way, two-way, or probabilistic sensitivity analyses. 3. Scenario analyses are included, as relevant 4. ICERs are reported with appropriate uncertainty metrics.	1. ☐ 2. ☐ 3. ☐ 4. ☐

[1]Shrime MG, Alkire BC, Grimes C, Chao TE, Poenaru T, Verguet S. Cost-effectiveness in global surgery: Pearls, pitfalls, and a checklist. *World Journal of Surgery* 2017. doi: 10.1007/s00268-017-3875-0