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SYSTEMATIC REVIEW OF COST ANALYSIS FOR STRESS URINARY INCONTINENCE SURGICAL PROCEDURES IN WOMEN

Hypothesis / aims of study

To comprehensively review the literature on economic analysis, including Cost Effective Analysis (CEA), of surgical procedures for Stress Urinary Incontinence (SUI) in women using principles laid out by standard reporting recommendations (1,2).

Study design, materials and methods

Economic analysis and CEA reports were reviewed and a summary table was produced to incorporate key outcome measures. Important criteria (Table 1) for evaluating articles were selected from panels (1,2) and a recent publication (3) that set out criteria to evaluate the quality of CEA for surgical procedures. A MEDLINE search for the years 2000 – 2014 was performed to find articles that included economic analysis for the surgical repair of SUI. Excluded were articles not written in English or not separating SUI procedure costs from pelvic organ prolapse repair costs. Each article was analyzed and ranked for adherence to the recommended criteria set forth in Table 1.

Results

Thirteen articles were identified and compared: TVT to BC (6), to other surgical procedures for SUI (1), to TOT (3), or to the single-incision minisling (1); open BC to laparoscopic BC (1); and various slings and meshes for various types of incontinence (1). Articles country of origin: United States (3), Europe (4), United Kingdom (4) and Canada (2). Eight described CEA, 2 cost-utility analysis, and 3 cost comparison. Follow-up time ranged from 6 to 24 months in 8 articles, with 4 having a minimum of 24 months follow-up. All studies included incremental costs, 11 had some type of long-term cost in their analysis, with 8 including the cost of reoperation. Four included a Markov Model with a decision tree.

Table 1. Key CEA Indicators applied to articles on SUI corrective procedures (n=13)
Adherence to criteria (n,%)

Target population and subgroups	*12*	92%	*Measurement of effectiveness*	*13*	100%
Setting and location	*10*	77%	*Estimating resources and costs*	*13*	100%
Study perspective	*8*	62%	*Currency, price date, conversion*	*11*	85%
Comparators	*13*	100%	*Study parameters*	*13*	100%
Time horizon	*12*	92%	*Incremental costs and outcomes*	*12*	92%
Discount rate	*5*	38%	*Characterizing uncertainty*	*10*	77%
Choice of health outcomes	*9*	69%	*Long term follow-up*	*10*	77%

Interpretation of results

Generally, the articles identified adhered to most of the criteria for CEA reporting; however important data pertaining to SUI surgical procedures were not included such as information on long-term follow-up and the costs associated with that longer follow-up. Data comparison among countries was not always straightforward because the currency and healthcare delivery systems differ. The cure rates for the Burch colposuspension ranged from 53% to 89% in the studies analysed; however, using more stringent criteria, the SISTEr (8) trial reported a cure rate of 49% for SUI after BC. Nilsson et al. (7) reported objective and subjective cure rates of 90% and 87%, respectively, 17 years after TVT in 61 women. Complications after MUS placement can occur many years later; however current literature is rarely available past 24 months, thus limiting the power of a Markov model for these types of SUI corrective procedures. Considering the large range of cure rates that have been reported and the possibility of mesh revision for complication, it is possible that a treatment could cross the threshold of what is considered cost-effective.

Concluding message

Contemporary literature on CEA for SUI is a burgeoning field, with established reporting criteria not always well-adhered to, thus hampering study comparisons. As women live longer, use of long-term data will be important as complications and reoperations can affect the real overall cost of SUI corrective procedures.

Table 2. Studies analyzed

	US 2013	US 2007	US 2013	Euro 2001	Euros 2006	Euros 2007	Euros 2013	UK 2004	UK 2003	UK 2006	UK 2013	Canada 2010	Canada 2013
	Seklehner et al. 2013	Wu et al. 2007	Laudano et al. 2013	Persson et al. 2001	Valpas et al. 2006	Ankardal et al. 2007	Montesino-Semper et al. 2013	kilonzo et al. 2004	Manca et al. 2003	Dumville et all. 2006	Boyers. Et al.	Lier et al. 2010	Lo et al. 2013
Type of Study	CEA	CEA	CEA	Cost-analysis	CEA	Cost comp.	CEA	CEA	CUA	CEA	CEA	CUA	Cost comp.
Background and Objective	Yes	Yes	Yes	Yes	Yes	Yes	Yes but limited	Yes	Yes	Yes	Yes	Yes	Yes
Methods													
Target population and subgroups	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Setting and location	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Study perspective	No	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No
Comparators	TVT, TOT	TVT, BC	TVT, BC	TVT,LBC	TVT,LBC	TVT, OBC, LCM, LBC	TVT, mini-sling, TOT	TVT, LBC, OBC	TVT, BC	LBC, OBC	Mini-sling, TVT	TVT, TOT	LBC, TOT, Lap 2 team
Time horizon (months)	>12	> 24	>12	>12	>12	>12	>12	>24	>6	>24	>12	>12	No
Discount rate	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	No	No	No
Choice of health outcomes	QALY	QALY	QALY	No	No	No	QALY	QALY	QALY	QALY	QALY	QALY	No
Measurement of effectiveness	RCTs	RCT	RCTs	RCT	RCT	RCT, RR	RR	RCTs	RCT	RCT	RCT	RCT	RR
Estimating resources and costs	Med RBRVS	Med RBRVS	Med RBRVS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Currency, price date, conversion	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Results													
Study parameters	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Incremental costs and outcomes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Characterizing uncertainty	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
discussion													
Findings, limitation, generalizability, and CK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No CK	No CK	No CK	Yes	Yes	No CK
Long term costs	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No

Key: CEA= Cost Effectiveness Analysis , Comp=Comparison, CUA=Cost Utility Analysis, TVT=Transvaginal tape, TOT=Transobturator tape, BC=Burch Colposuspension, LBC=Laparascopic Burch Colposuspension, OBC= Open Burch Colposuspension, LCM=Laparascopic Mesh Burch Colposuspension, QALY = Quality Adjusted Life Years, RCT=Randomized Control Trial, RR=Retrospective Review, Med RBRVS = Medicare Resource-Based Relative Value Units

Disclosures
Funding: none **Clinical Trial:** No **Subjects:** NONE