



The Cost-Effectiveness of Gender-Affirming Mastectomy

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Background

- Mortality rates are higher in the transgender and gender diverse (TGD) community due in part to psychiatric comorbidity.
- Gender-affirming surgery and hormone therapy (GAS/GAHT) is associated with enhanced mental health and quality of life.
- Cost of care and systematic bias limit access to GAS/GAHT, which are potentially life-saving services.
- The purpose of this study was to demonstrate the short-term cost-effectiveness of gender-affirming mastectomy.**

Methods

- A cost-effectiveness study was performed using a Markov model and a willingness to pay (WTP) threshold of \$50,000/Quality Adjusted Life Years (QALY's).
- Health event data extracted from the 2015 US Transgender Survey (USTS) Report, the Froedtert & Medical College of Wisconsin Health Network, and literature.
- Incremental cost-effectiveness ratios (ICER's) were calculated.

Figure 1: Markov Model

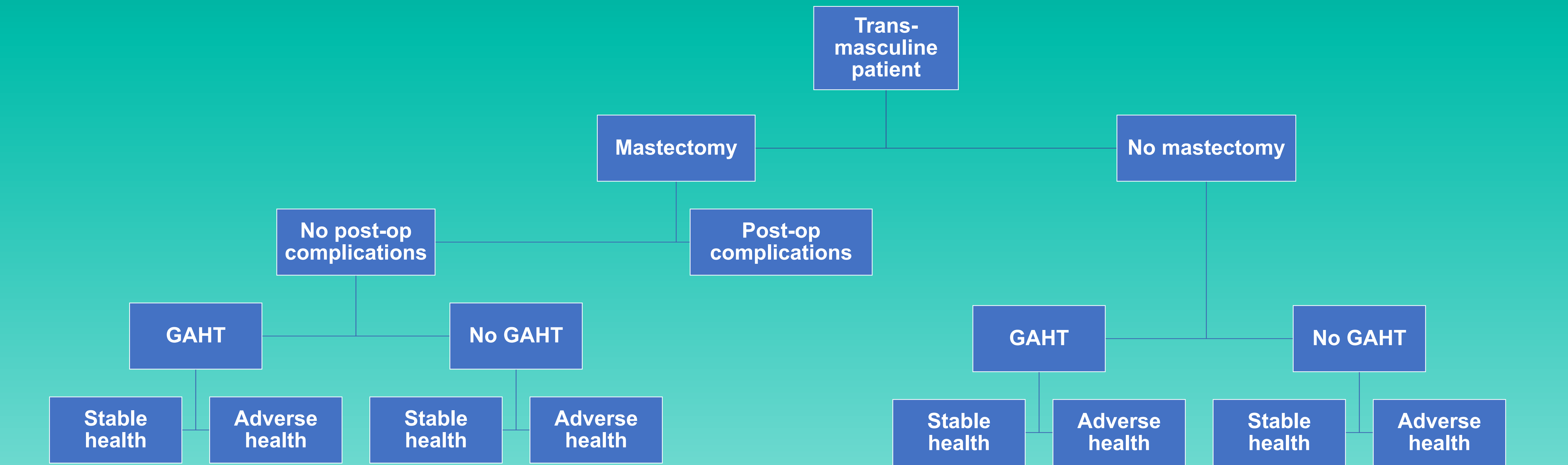


Table 1: Adverse Mental Health State From Literature						
Health State	Probability	Probability Source	Cost (\$)	Cost Source	Effectiveness (QALY)	Effectiveness Source
Serious Psychological Distress	0.39	USTS, 2015	7,829.40	Choi et al., 2014	0.732	Sullivan et al., 2006
Suicidality	0.40	USTS, 2015	21,671	Czerin et al., 2012	0.693	Sullivan et al., 2006
Drug abuse	0.29	USTS, 2015	11,448	Bishai et al., 2007	0.13	Sullivan et al., 2006
Mean	0.36		13,649.47		0.52	

Table 2: Base Case Costs and Effectiveness				
Health State	Cost (\$)	Cost Source	Effectiveness (QALY)	Effectiveness Source
GAHT	3,173	HealthCare Bluebook	0.80	Padula et al., 2016, NTDS, 2010
Mastectomy without complications	10,428	Froedtert&MCW Health Network	0.80	Padula et al., 2016
Mastectomy with Complications	17,241	Froedtert&MCW Health Network, Billig et al., 2017	0.76	Thoma et al., 2006
Adverse Health	13,649.47	Calculated	0.518	Calculated

Table 3: Adverse Mental Health and Death/Suicide Odds Ratios		
Health State	Almazan et al., 2021 Odds Ratios	
	Adverse Mental Health	Death/Suicide
Yes Mastectomy/No Complications/Yes GAHT	0.47	0.44
Yes Mastectomy/No Complications/No GAHT	0.70	0.70
Yes Mastectomy/Yes Complications/Yes GAHT	0.47	0.44
Yes Mastectomy/Yes Complications/No GAHT	0.70	0.70
No Mastectomy/Yes GAHT	0.8	0.8 (assume)
No Mastectomy/No GAHT	1	1

*Adverse health calculated from odds ratios (Table 3) and mental and health probabilities (Table 1), assumed adverse health and stable health equal to one; #Assumed 5% lower QALY compared to no complications, **Assumed 80% lower QALY compared to mastectomy

Table 4: Calculated Probabilities, Costs, and Effectiveness

Health State	Calculated Probability*	Calculated Cost (\$)	Calculated Effectiveness (QALY)
Mastectomy			
No Post-op Complications	0.831		
On GAHT	0.49		
Stable Health	0.819	13,601	0.80
Adverse Health	0.181	27,250.47	0.52
Not on GAHT	0.51		
Stable Health	0.729	10,428	0.80
Adverse Health	0.279	24,077.47	0.52
Post-op Complications	0.169		#
On GAHT	0.49		
Stable Health	0.819	20,414	0.76
Adverse Health	0.181	34,063.47	0.49
Not on GAHT	0.51		
Stable Health	0.729	17,241	0.76
Adverse Health	0.271	30,890.47	0.49
No Mastectomy			
On GAHT	0.49		**
Stable Health	0.69	3,173	0.64
Adverse Health	0.31	16,822.47	0.42
Not on GAHT	0.51		
Stable Health	0.613	0	0.64
Adverse Health	0.387	13,649.47	0.42

Table 5: Model Results

Strategy	Cost (\$)	Incr. Cost	Effectiveness (QALY)	Incr. Effectiveness	ICER (\$/QALY)
Year 1					
Mastectomy	16,231.23		0.73		
No Mastectomy	6,322.12	9,909.11	0.56	0.17	58,288.88
Year 2					
Mastectomy	22,438		1.46		
No Mastectomy	14,195	8,243	1.13	0.33	24,978.79

Conclusions & Future Directions

- Gender-affirming mastectomy is cost-effective in the short-term with an ICER less than the WTP after two years suggesting gender-affirming care should be widely accessible.
- Future studies will determine the long-term cost-effectiveness of mastectomy.