

Cost-Utility Analysis of Upfront Pharmacotherapy Compared to an Upfront Surgical Intervention for Patients with Benign Prostate Hyperplasia

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INTRODUCTION

- Pharmacotherapy doesn't necessarily cure BPH and patients may require subsequent surgical interventions such as transurethral resection of the prostate (TURP) or alternatives such as photoselective vaporization of the prostate using Greenlight laser (GL-PVP).
- GL-PVP has better perioperative safety, shorter hospitalization time and lower costs compared to TURP and faster symptomatic improvement compared to pharmacotherapy.

METHODS

- A microsimulation model of the progression of BPH symptoms, cost projection, and quality-adjusted life-years (QALYs) in the target population was developed
- Cost-utility analysis was performed using a Canadian public payer perspective, a life-time time horizon, a discount rate of 1.5% and a willingness-to-pay threshold of \$50,000 per QALY gained.
- Costs of pharmacotherapy was obtained from the Ontario Drug Benefit Formulary. Costs of BPH surgeries were collected retrospectively. All other parameters were obtained from the literature

AIM

The purpose of this study was to evaluate the cost-utility of upfront followed by delayed TURP or GL-PVP for those who fail, compared to receiving an upfront surgical intervention.

RESULTS

Strategies	Costs per patient (SCAD)	QALYs per patient	Incremental costs per patient	Incremental QALYs per patient	Incremental cost per QALY gained (ICER)
Discounted (1.5% - Lifetime)					
Upfront TURP	\$12,973.35	15.35	-	-	-
Upfront combination with delayed TURP*	\$10,737.39	15.20	\$(2,235.97)	-0.15	\$14,812.97
Upfront 5-ARI with delayed TURP*	\$10,507.91	15.18	\$(2,465.44)	-0.17	\$14,762.99
Upfront alpha-blocker with delayed TURP*	\$10,372.53	15.09	\$(2,600.83)	-0.26	\$10,059.80
Upfront GL-PVP	\$11,958.65	15.31	-	-	-
Upfront combination with delayed GL-PVP**	\$10,258.43	15.19	\$(1,700.22)	-0.12	\$14,069.42
Upfront 5-ARI with delayed GL-PVP**	\$9,993.82	15.17	\$(1,964.83)	-0.15	\$13,479.55
Upfront alpha-blocker with delayed GL-PVP**	\$9,806.89	15.08	\$(2,151.77)	-0.24	\$9,155.68
Excluding dominated strategies***					
Upfront alpha-blocker with delayed GL-PVP	\$9,806.89	15.08	-	-	-
Upfront 5-ARI with delayed GL-PVP	\$9,993.82	15.17	\$186.93	0.09	\$2,094.34
Upfront combination with delayed GL-PVP	\$10,258.43	15.19	\$264.61	0.02	\$10,618.96
Upfront GL-PVP	\$11,958.65	15.31	\$1,700.22	0.12	\$14,069.42
Upfront TURP	\$12,973.35	15.35	\$1,014.70	0.03	\$29,065.57

Table 1 – Discounted lifetime costs and QALYs per patient and cost-utility analysis by treatment strategy

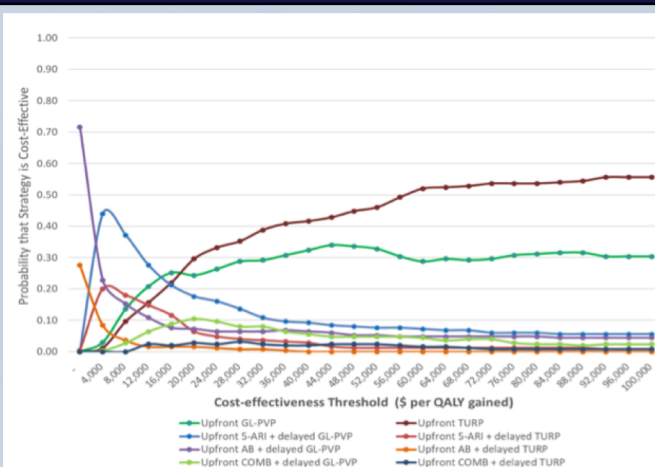


Figure 1. Cost-effectiveness acceptability curve

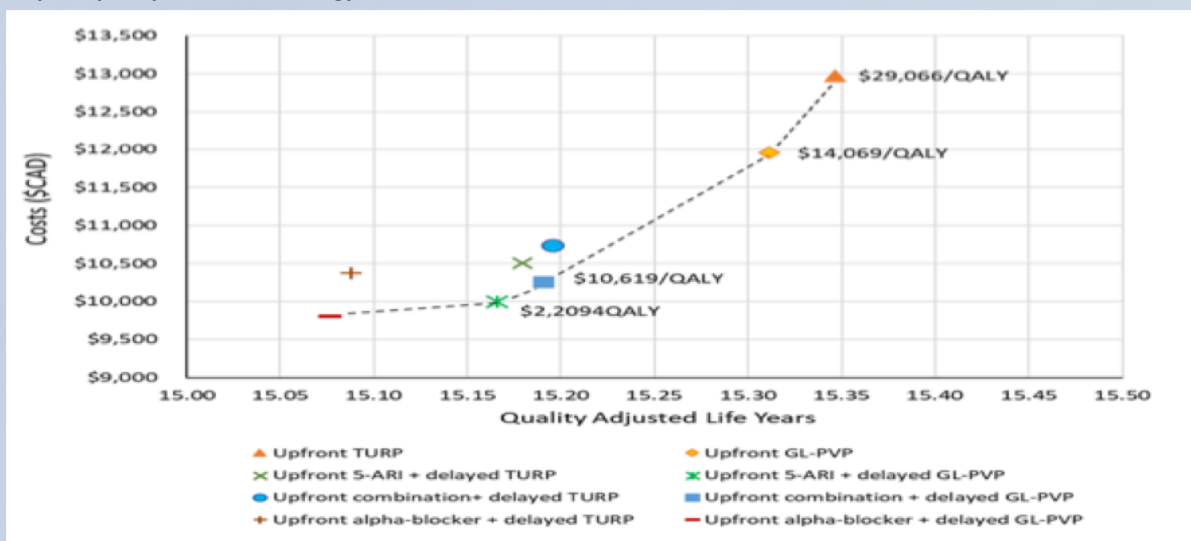


Figure 2. Cost-effectiveness plane for base-case analysis

CONCLUSIONS

- Compared to the upfront pharmacotherapy options, upfront surgical interventions were more costly but more effective
- Compared to upfront GL-PVP, upfront TURP resulted in only marginally greater effectiveness, which translated to an ICER falling below the \$50,000 threshold.
- Compared to upfront TURP, upfront GL-PVP was associated with lower costs (\$12,973 vs. \$11,959) and a marginally lower effectiveness (15.31 vs. 15.35 QALYs) translating to an incremental cost per QALY gained of \$29,066.
- Given the lower costs, relative effectiveness and better safety, GL-PVP may be considered as a preferred upfront intervention for certain patients with moderate-to-severe BPH.

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