**Figure 1.** Treatment algorithm for elective repair at London Health Sciences Centre (LHSC)

**Figure 2.** Literature review and evaluation of suitable articles for meta-analysis

**Figure 3.** Literature Review Estimated 30-day Major Complications Rates

**Figure 4.** EQ-5D utilities for EVAR and OSR patients

**Figure 5.** Markov model for EVAR

**Figure 6.** One-year Markov model for EVAR

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**Rationale**

- Abdominal aortic aneurysms (AAA) are a major health problem in Ontario.
- Prevalence of AAA varies by gender: 4.1%-14.2% in men; 0.4%-6.2% in women.
- Mortality rates are high.
- 13th leading cause of death in Canada.
- Treatment options:
  - Open surgical repair (OSR)
  - Endovascular repair (EVAR)
  - Best medical treatment (BMT)
- Effectiveness of EVAR in Canada is uncertain.
- Cost-effectiveness of EVAR in Canada is uncertain.

**Objectives**

1. Conduct a systematic literature review of effectiveness of EVAR vs. OSR.
2. Construct a field evaluation study at London Health Sciences Centre (LHSC) to collect Ontario specific information regarding the efficacy, costs and impact on quality of life of EVAR in Ontario.
3. Conduct an interim analysis on a subset of patients with 1-year follow-up recruited into the field evaluation.
4. Construct a decision analytic model to evaluate the cost-effectiveness of EVAR versus OSR.
5. Estimate the budget impact for Ontario.

**Methods**

**Literature Search**

- Databases searched:
  - MEDLINE, EMBASE, Cumulative index to nursing & allied health literature (CINAHL), Cochrane Database of Systematic Reviews (CDSR), ACP Journal Club, Database of Abstracts of Reviews of Effects (DARE) and Cochrane Central Register of Controlled Trials (CENTRAL)
- 1st search November 6, 2004; update to end of 2005
- Randomized,
- Comparative Information
  - EVAR vs. OSR
  - OSR vs. BMT

**Field Evaluation**

- Interim analysis of 79 patients with 1 year follow-up as of April 1, 2005 (341 patients recruited)
- EVAR baseline characteristics most similar to OSR high risk patients (Table 1)
- EVAR & OSR – 100% primary technical success
- EVAR had no major post-operative complications
- Interim analysis of 79 patients with 1 year follow-up recruited into the study will provide a more different due to:
  - Uncertainty (this has been implemented and will be incorporated into final results)
  - Small sample of patients in interim field evaluation. Analysis of data from all patients recruited into the study will provide a more precise estimate of complication rates associated with OSR & EVAR

**Economic Evaluation**

- Determine cost-effectiveness of EVAR vs. OSR from field evaluation data and literature review
- Decision analytic model
  - Data from systematic literature review
  - Field evaluation costs and quality of life data
- Markov model:
  - 70 year old male
  - AAA > 5.5 cm
  - Medically suitable to undergo either OSR or EVAR

**Results**

- EVAR is cost-effective in high risk patients

**Discussion**

- Probabilistic model needed to properly address uncertainty (this has been implemented and will be incorporated into final results)
- Small sample of patients in interim field evaluation. Analysis of data from all patients recruited into the study will provide a more precise estimate of complication rates associated with OSR & EVAR
- Literature and field evaluation estimates may be different due to:
  - Mixed patient population in literature (high & low risk patients) – lower surgical risk in OSR
  - LHSC is an experienced centre – lower complication rate, potential for referral bias (getting more difficult cases).

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