Fertility options after vasectomy: a cost-effectiveness analysis
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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Fertility options after vasectomy: vasectomy reversal versus assisted reproduction in conjunction with sperm retrieval (intracytoplasmic sperm injection - ICSI, percutaneous retrieval from the epididymis and extraction of spermatozoa from the testis).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
A hypothetical cohort of male patients with post-vasectomy infertility with a female partner aged 39 years or younger.

Setting
Hospital. The economic study was carried out in New York, USA.

Dates to which data relate
The main effectiveness data were obtained from previously published studies dated 1988-97. Resource and cost data were taken from 1993-97 sources. The price year was 1994.

Source of effectiveness data
The estimate for in vitro fertilization (IVF) pregnancy rates (PRs), pretreatment, treatment, complications, lost work and delivery costs were derived from previously published studies.

Outcomes assessed in the review
The outcomes assessed were: in vitro fertilization (IVF) pregnancy rates (PRs) and delivery rates, pretreatment, treatment, complications, lost work and delivery costs.

Study designs and other criteria for inclusion in the review
No specific study designs were stipulated by the authors as inclusion criteria.

Sources searched to identify primary studies
A literature search was performed on CDP Colleague using "vasectomy" and "reversal" as the key search words.
Criteria used to ensure the validity of primary studies
Not stated.

Methods used to judge relevance and validity, and for extracting data
Not stated.

Number of primary studies included
15 primary studies were included in the review.

Methods of combining primary studies
Weighting of data.

Investigation of differences between primary studies
Not stated.

Results of the review
Vasectomy reversal had an overall PR of 52% and a live delivery rate of 47%. Sperm retrieval and ICSI procedures had an average PR of 33% and a mean weighted delivery rate per attempt of 33%.

Measure of benefits used in the economic analysis
The measure of benefit was the live delivery rate (because of the high probability of multiple births after assisted reproductive interventions, achieving a single live birth for two different couples is assumed to be much greater value as an outcome than achieving a twin birth in one couple).

Direct costs
The pretreatment, treatment, complication and delivery costs were included in the analysis. The quantities and the prices were analysed separately. Discounting was not applied. The quantities/costs boundary adopted was that of the hospital. The price year was 1994.

Statistical analysis of costs
Ninety-five percent confidence intervals (CI) were reported.

Indirect Costs
The lost work costs were included in the analysis. Quantities and prices were analysed separately. Discounting was not applied. The quantities/costs boundary adopted was that of the hospital. The price year was 1994.

Currency
US dollars ($).

Sensitivity analysis
A sensitivity analysis was performed, although the parameters and the method used were not stated.

Estimated benefits used in the economic analysis
The average delivery rate achieved from a single intervention was 47% after the vasectomy reversal approach and 33% after the sperm retrieval and ICSI approach.

**Cost results**
The pretreatment sperm aspiration approach cost was $245. The complication costs were $54, both for the vasectomy reversal approach and the sperm aspiration approach. The lost work costs were $360 in the vasectomy reversal approach. The total costs ranged between $11,922 and $17,151 in the vasectomy reversal approach and between $20,347 and $28,072 in the sperm aspiration approach. The cost per delivery ranged between $24,838 and $50,336 (vasectomy reversal) and between $73,146 and $71,896 (sperm aspiration). The treatment cost for vasectomy reversal approach ranged between $6,782 and $13,051 against a treatment cost range of $1,000 and $5,329 for sperm aspiration.

**Synthesis of costs and benefits**
A notable improvement in cost per delivery as well as delivery rates was maintained for couples with post-vasectomy infertility who chose vasectomy reversal over sperm retrieval-ICSI. The costs per delivery were $25,475 in the vasectomy reversal approach and $72,521 in the sperm retrieval-ICSI approach. As such an incremental analysis was performed.

**Authors' conclusions**
The most cost-effective approach for post-vasectomy infertility is microsurgical vasectomy reversal.

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of comparator is clear. Sperm retrieval and ICSI are widely used approaches in the treatment of post-vasectomy infertility. You, as a user of this database, should consider whether these are widely used health technologies in your own setting.

**Validity of estimate of measure of benefit**
The estimate of the measure of benefit used in the economic analysis is likely to be internally valid. The data have not been used selectively and were based on a reasonable number of studies.

**Validity of estimate of costs**
Resource quantities were reported separately from the prices. Adequate details of the methods of quantity/cost estimation were given. Important cost items do not appear to have been omitted.

**Other issues**
The authors’ conclusions are likely to be justified given the uncertainties in the data. The issue of generalisability to other settings/countries was not addressed, however, comparisons were made with other studies. The results do not appear to have been presented selectively.

**Implications of the study**
Further research is required into the risk of multiple gestations.

**Source of funding**
None stated.

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