Assessing effectiveness and cost-effectiveness of concurrency reduction for HIV prevention
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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.

CRD summary
The objective was to assess the cost-effectiveness of three campaigns to reduce polygamy to prevent HIV infection. The authors concluded that programmes to reduce concurrent sexual relationships could be cost-effective in reducing HIV incidence over a wide range of assumptions. Targeting those with the most concurrent relationships was most effective. The methods were adequate and, given the lack of evidence on the true effectiveness of the intervention, the conclusions are appropriate.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The objective was to assess the cost-effectiveness of three campaigns to reduce polygamy to prevent HIV infection.

Interventions
The three campaigns had different target populations and aims. One aimed to reduce the number of people in more than one partnership by promoting single partnerships. The second was aimed at people in a high number of concurrent partnerships and aimed to reduce that number. The third aimed to reduce the number of partnerships for all those in more than one partnership. These were compared with no campaign.

Location/setting
Swaziland, Tanzania, Uganda, and Zambia/community care.

Methods
Analytical approach:
A stochastic network model was developed to simulate the course of the HIV epidemic over 10 years. The perspective was not explicitly reported.

Effectiveness data:
The effectiveness was defined as the percentage of polygamous individuals who became monogamous. As this was unknown, it was varied from zero to 50%. The remaining effectiveness inputs were from published studies. The main parameters were the distribution by gender of polygamous partnerships, which was from population surveillance data for the four study countries; and the probability of HIV transmission per sexual contact.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The measure of benefit was the percentage reduction in new HIV infections.

Cost data:
The direct costs included those of the campaigns to reduce polygamous partnerships. These costs were based on behaviour-change campaigns implemented in other African countries. The lifetime medical costs of caring for someone with HIV in Africa were included and the estimates were from published studies. All costs were reported in US $.

Analysis of uncertainty:
One-way sensitivity analyses were undertaken by varying the range of polygamy, the demographic and epidemic patterns, and the programme's effectiveness.

Results
A programme targeting those in a high number of partnerships, with 10% effectiveness, led to the highest average decrease in new infections of 11.7%. With monogamy promotion, the average decrease was 8.7% and with a reduction in partnerships for all those in multiple partnerships, it was 8.9%.

If the programme cost $0.25 per person annually, it needed an effectiveness of less than 5% to be cost saving. If it cost $1 per person, it needed an effectiveness of 9% to be cost saving.

Results of the sensitivity analyses showed that with low levels of polygamy, fewer infections were averted with the three behaviour-change programmes, increasing the cost per HIV infection averted, but targeting those in a high number of partnerships remained the most effective intervention.

Authors' conclusions
The authors concluded that programmes to reduce concurrent sexual relationships could be cost-effective in reducing HIV incidence over a wide range of assumptions. Targeting those with the most concurrent relationships was most effective.

CRD commentary
Interventions:
The interventions were described. They could have included other programmes with different messages aimed at different populations, but including more programmes would not have changed the findings.

Effectiveness/benefits:
As the main measure of effectiveness was unknown, the authors had to vary it from zero to 50%. Other clinical parameters were from published studies and reports. The authors reported that modest reductions in concurrent relationships were required to make the intervention cost-effective, but given the lack of knowledge on its true effectiveness, it is unclear if even modest reductions were possible.

Costs:
The authors did not report the perspective, making it unclear if all the relevant cost categories and costs were included. The sources for the costs were reported, but the authors did not report if the future medical costs for the treatment of HIV were discounted. They also did not report the price year, which will hamper future inflationary exercises.

Analysis and results:
A stochastic network model was used to synthesise the cost and outcome information. The details of the model structure were reported, but no diagram was provided. One-way sensitivity analyses were undertaken to assess the impact of uncertainty on the model's results. This analysis went some way in evaluating uncertainty, but a probabilistic sensitivity analysis could have evaluated the overall model uncertainty. One of the main study limitations, highlighted by the authors, was that the estimates of polygamy relied on very limited data.

Concluding remarks:
The methods were adequate and, given the lack of evidence on the true effectiveness of the intervention, the conclusions are appropriate.

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Bibliographic details