Comparing the costs of three prostate cancer follow-up strategies: A cost minimisation analysis

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Disclosure

• No disclosures

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More men are living with prostate cancer than any other form of cancer

- population 4.6 million
- 793,000 men aged 45+

Prostate cancer 23,996 (44%)
Colorectal cancer 8,207 (15%)
Lung cancer 1,969 (4%)

Sharp et al. BMC Cancer 2014; 14: 767
Prostate cancer follow-up

• Traditionally provided in hospital by clinicians

• May not be sustainable – especially in countries with publically-funded healthcare

• Alternative models of follow-up
  – appear to have equivalent clinical efficacy and quality-of-life outcomes to tradition follow-up
  – starting to be recommended in guidelines
  – BUT limited evidence on cost implications

Objective

To develop an economic model to compare the costs of three alternative strategies for prostate cancer follow-up in Ireland:

• European Association of Urology (EAU) guidelines
• National Institute of Health & Clinical Excellence (NICE) guidelines
• current practice
## Methods 1: Follow-up policies

<table>
<thead>
<tr>
<th>Policy</th>
<th>PSA testing</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUA guidelines</td>
<td>Year 1: 3, 6, 12 months Years 2 &amp; 3: every 6 months Year 4 onwards: every 12 months</td>
<td>Hospital-based clinician</td>
</tr>
<tr>
<td>NICE guidelines</td>
<td>Years 1 &amp; 2: every 6 months Year 3 onwards: every 12 months</td>
<td>Hospital-based clinician initially. If stable PSA and no physical or psychosocial complications after 2 years, follow-up in primary care (GP/nurse).</td>
</tr>
<tr>
<td>Current practice*</td>
<td>Year 1: every 4 months Year 2: every 6 months Year 3 onwards: every 12 months</td>
<td>PSA performed by GP and results provided by hospital-based clinician initially. If stable PSA after 5 years, follow-up in primary care (GP).</td>
</tr>
</tbody>
</table>

- Mottet N et al. European Association of Urology, 2014
- NICE Clinical Guideline 175, 2014
- Survey of urologists and radiotherapists
Methods 1

• Markov model
  – follow cohort of 1000 men aged 66 treated with curative intent over 10 years, through range of “states” accruing costs in each state
  – done for each of 3 arms

• Healthcare payer perspective

• Cost minimisation analysis
  – assume health outcomes in model arms are not significantly different

• Probabilities of physical or psychosocial problems
  – large surveys of prostate cancer survivors in Ireland (EQ-5D-5L)

• Costs
  – UK reference costs
  – discounted at 5%

• Sensitivity analyses
  – one-way and probabilistic
### Results 1: Cost per policy

<table>
<thead>
<tr>
<th>Policy</th>
<th>Cost of follow-up per survivor</th>
<th>% of current practice costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUA guidelines</td>
<td>€1057</td>
<td>92%</td>
</tr>
<tr>
<td>NICE guidelines</td>
<td>€853</td>
<td>74%</td>
</tr>
<tr>
<td>Current practice</td>
<td>€1150</td>
<td>-</td>
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</tbody>
</table>
Results 2: Costs by year

Cost of follow-up care per survivor per year

![Graph showing costs by year for different guidelines and current practice.](image)
Results 3: Cost savings

Savings compared to current practice over a 10 year period

Savings for one year cohort of survivors

<table>
<thead>
<tr>
<th></th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAU guidelines</td>
<td>€236,959</td>
</tr>
<tr>
<td>NICE guidelines</td>
<td>€761,119</td>
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</tbody>
</table>
Results 4: Sensitivity analyses

Main conclusion unaltered in all sensitivity analyses – current practice is least cost-efficient option
Summary & Conclusions

- First comparison of costs of alternative prostate cancer follow-up models

- Limitations: context specific; model simplifies reality; assumption of same clinical efficacy and quality-of-life outcomes with different policies; not all follow-up models considered

- Current practice least cost-efficient option

- Cost savings could be possible with follow-up strategies which offer less frequent PSA testing, greater involvement of primary care, and discharge from hospital follow-up for survivors without complications
  - (aspects) consistent with findings of economic evaluations of breast and colorectal cancer follow-up in Europe*

- Additional dimension on debate regarding the purpose and “structure”/organisation of cancer follow-up

Acknowledgements

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