Evaluation of transition scenarios for breast cancer screening in France to increase participation of women aged 50 to 74 years

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01 Background, objectives & methods
Background

- 2 possible modalities of Breast Cancer Screening (BCS) for women aged 50 to 74 years

<table>
<thead>
<tr>
<th></th>
<th>Nationally organised screening programme (OS)</th>
<th>Opportunistic screening (OPPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitation</td>
<td>Systematic, every 2 years</td>
<td>No</td>
</tr>
<tr>
<td>Target population</td>
<td>50-74 y</td>
<td></td>
</tr>
<tr>
<td>Quality Insurance System</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Coverage</td>
<td>52.5%</td>
<td>10%</td>
</tr>
<tr>
<td>Equality of access</td>
<td>Yes</td>
<td>Not ensured</td>
</tr>
</tbody>
</table>

- OPPS ➔ lower participation level & efficiency of OS
- Simulation to explore strategies for increasing participation in BCS in France
1. To determine the best approach to improve effectiveness and cost-effectiveness of BCS

- 3 possible target situations:
  - Status quo (current situation)
  - Switch full population to OS
  - Stop OS programme and switch full population to OPPS

- Evaluation:
  - Participation, screening tests, diagnostics tests, ACR, etc.
  - Numbers of cancers detected,
  - Costs
    - National Health Insurance, Women and/or supplementary insurance, Total
Objectives & methods (2/2)

2. To evaluate the ability of 5 scenarios to reach the objective
   • Non reimbursement of OPPS mammography (S1);
   • Quality control in OPPS (S2);
   • Operational changes in OS (S3);
   • Fees changes (S4),
   • Incentives for health care practitioners (S5)

• Methods
  • Simulation based on a static analytic model
  • Organizational and budgetary impact
02
Results
## Results: full switch to organised screening

<table>
<thead>
<tr>
<th></th>
<th>Number of women</th>
<th>Health insurance costs</th>
<th>Co-payment/ supplementary health insurance</th>
<th>Total costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target situation (full switch to OS):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammography</td>
<td>2 722 813</td>
<td>180.8 M€</td>
<td>- €</td>
<td>180.8 M€</td>
</tr>
<tr>
<td>2nd reading (normal mammography)</td>
<td>2 630 237</td>
<td>15.0 M€</td>
<td>- €</td>
<td>15.0 M€</td>
</tr>
<tr>
<td>Ultrasound</td>
<td>588 128</td>
<td>8.6 M€</td>
<td>3.7 M€</td>
<td>12.2 M€</td>
</tr>
<tr>
<td>Aspiration cytology</td>
<td>5 446</td>
<td>0.3 M€</td>
<td>0.2 M€</td>
<td>0.5 M€</td>
</tr>
<tr>
<td>Biopsy</td>
<td>21 783</td>
<td>3.6 M€</td>
<td>1.3 M€</td>
<td>4.5 M€</td>
</tr>
<tr>
<td>ACR 3 follow-up</td>
<td>57 724</td>
<td>1.5 M€</td>
<td>0.6 M€</td>
<td>2.1 M€</td>
</tr>
<tr>
<td><strong>Total number of women screened</strong></td>
<td>2 722 813</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Participation rate</strong></td>
<td>62.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total number of cancers detected</strong></td>
<td>19 343</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td></td>
<td>209.4 M€</td>
<td>5.8 €</td>
<td>215.2 M€</td>
</tr>
<tr>
<td><strong>Current Situation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total number of cancers detected</strong></td>
<td>19 060</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td></td>
<td>200.3 M€</td>
<td>18.0 M€</td>
<td>218.4 M€</td>
</tr>
<tr>
<td><strong>Difference/Current Situation</strong></td>
<td>+ 283</td>
<td>+ 9.1 M€</td>
<td>- 12.2 M€</td>
<td>- 3.2 M€</td>
</tr>
</tbody>
</table>

*HTAi 2012 Breast cancer screening in France (50-74 ans)*
## Results: Transition scenarios to full switch

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Rational/justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1:</td>
<td>Non reimbursement of OPPS mammography (recommendation from several French institutional reports)</td>
</tr>
<tr>
<td>S2:</td>
<td>Quality Control in OPPS (2nd reader)</td>
</tr>
<tr>
<td>S3:</td>
<td>Operational changes in OS (ultrasound more systematically, no more 2nd reading)</td>
</tr>
<tr>
<td>S4:</td>
<td>Fee changes for mammography &amp; ultrasound (limitation of co-prescriptions)</td>
</tr>
<tr>
<td>S5:</td>
<td>Qualitative measures &amp; incentives for Health Care practitioners (to facilitate inclusion in OS)</td>
</tr>
</tbody>
</table>
Results: Transition scenario to full switch

- Changes in women’s behaviour:
  - Switching rates from OPPS to OS
  - ‘Giving-up’ rates from BCS

- 4 variants for S1 and S5
  (resp. non reimbursement of OPPS mammography & Qualitative incentives):
  - Switch 0% Give-up 0% (S1a et S5a)
  - Switch 100%, Give-up 0% (S1b et S5b)
  - Switch 50%, Give-up 0% (S1c et S5d)
  - Switch 25%, Give-up 0% (S5c)
  - Switch 50%, Give-up 25% (S1d)
Results: cost-effectiveness of scenarios

Variants for S1 and S5:
- S1a = transfer 0% and withdrawal 0%
- S1b = transfer 100% and withdrawal 0%
- S1c = transfer 50% and withdrawal 0%
- S1d = transfer 50% and withdrawal 25%
- S5a = transfer 0%
- S5b = transfer 100%
- S5c = transfer 25%
- S5d = transfer 50%
03

Discussion and implications for the health system
Discussion

- **Switch to OS for women participating in OPPS is cost effective**
  - More cancers detected at a lower cost

- **Strategies S2, S3 & S4 lead to worsened situations (compare to current situation)**

- **Only S1 and S5 would lead to the transfer of the entire target population to OS**
  - 71 to 283 additional cancers detected
  - Savings of 0.9 M to 3.1 M€

  ... but subject to
  - High transfer rate to OS and/or
  - Low withdrawal rate from BCS
Implications for the French Health System

- Strategies that could be combined
  - Various incentives toward HC professionals could be designed
  - Alongside discontinuation of OPPS mammography coverage
- Adjusting French BCS policy
- Knowledge gaps/further research
  - Women’s behaviour (transfer and withdrawal rates)
  - Effectiveness and C/E of OPPS
  - Full evaluation of BCS in France (impact on mortality, morbidity, C/E)
Thank you for your attention

Further details on www.has-sante.fr

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