Session 4: Making a case - ROI and business case for tobacco control

ARCH Technical Workshop Bali August 2014
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Health Economics Research Group
Brunel University London
Session outline

• What does ROI mean?
• Why do we need to know ROI of tobacco control?
• Introduction to NICE Tobacco ROI tool

An example of a business case based on NICE tool
ROI

• Return on investment
• Umbrella term used to refer to the return that investing in tobacco control agendas could generate
• Primarily economic concept (Does my $1 investment give me >$1 benefit?)
• Wider consequences are being included, not necessarily monetised - SROI
Since 1995, when the first full week of April was declared National Public Health Week, communities across the United States have observed NPHW as a time to recognize the contributions of public health and highlight issues that are important to improving the public's health.

The American Public Health Association serves as the organizer of NPHW and develops a national campaign to educate the public, policymakers and practitioners about issues related to that year’s theme. APHA creates comprehensive planning, organizing and outreach materials that can be used during and after the week to raise awareness.

PUBLIC HEALTH IS...
ROI
Save Lives, Save Money
National Public Health Week
April 1–7, 2013 • www.nphw.org
PUBLIC HEALTH IS ROI: PREVENTION WORKS

- U.S. health care costs rose tenfold from 1980 to 2010 and are expected to rise faster than national income during the foreseeable future. However, investing just $10 per person each year in proven, community-based public health efforts could save the nation more than $16 billion within five years. That’s a $5.60 return for every $1 invested.

- Routine childhood immunizations save $9.9 million in health care costs, save 33,000 lives and prevent 14 million cases of disease.

- A $52 investment in a child safety seat prevents $2,200 in medical costs and results in a return of $42 for every $1 invested. Similarly, a $12 investment in a child’s bicycle helmet prevents $580 in medical costs and results in a return of $48 for every $1 invested.

- The cost of providing dental care for children enrolled in Medicaid and living in communities without fluoridation is twice as high as for children who receive the benefits of fluoridated drinking water.
The NICE tobacco return on investment tool has been developed to help decision making in tobacco control at local and sub-national levels.

The tool evaluates a portfolio of tobacco control interventions and models the economic returns that can be expected in different payback timescales. Different interventions, including pharmacotherapies and support and advice, can be mixed and matched to see which intervention portfolio or package provides the best 'value for money', compared with 'no-services' or any other specified package.

Produced for NICE by the Health Economics Research Group (HERG) at Brunel University, the tool is to support commissioners and policy makers, in local authorities and the NHS, in their investment decisions. Select an area of interest using drop down menus, and the tool will automatically estimate the smoking and ex-smoking populations based on up-to-date statistics. This population composition is used to model the impact of smoking on relevant endpoints, taking into account short-, medium- and long-term events.

The tool builds on previous work including work undertaken by HERG on behalf of Tobacco Free Futures, Fresh Smoke Free North East and Smoke Free South West.

The tool is accompanied by a package of support materials, including a user guide and technical report, and can be downloaded using the links below.

This page contains the most up-to-date tool, so please ensure that you are using the latest version. The most recent version is version 3 check this page regularly to ensure the tool you have downloaded is up to date.
NICE Tobacco ROI tool

Scope:
- Develop a toolkit that would estimate economic impact of broader tobacco control (not limited to cessation interventions)
- A user friendly version that would generate outputs for different geographical area (e.g. LA, county and region)

Timing - challenging:
- Provision and funding of public health undergoing major changes
- Anecdotal evidence suggests smoking prevalence is falling at a lower rate during recession
- Need to ensure that tobacco control and smoking cessation remain a public health priority
Limitations of previous analyses

• Disparate estimates of the burden
  – Differences in scope/perspective – i.e. inclusion of indirect costs such as productivity costs
  – Differences in conditions included and attributable fractions applied

• Intended to inform national debate on tobacco control
  – Dominated by estimates of lifetime/long-term impact with minimal resonance for local decision makers
  – Small area level analysis limited (Callum et al. 2005)
NICE ROI Tool

- Microsoft Excel based Markov model
- Begins with total population in selected area
- Current smokers, ex-smokers, never smokers
- Interventions may help current smokers to quit but they may relapse too
- Current smokers are followed for their lifetime to track changes in mortality, health service use, and productivity
- Cost and QALYs are estimated accordingly
Aim of the tool

• To explore the economic case for comprehensive tobacco control strategies

  – Build on the best available evidence on tobacco control
  – Suitable for use by health and local authorities
  – Include health and non-health outcomes
  – Include financial and non-financial consequences
Development of the model

• Attempt to build on previous analyses (e.g. Flack, Taylor & Trueman 2007)

• Incremental improvements:
  – Improved granularity of metrics
  – Incorporate uptake and passive smoking effects
  – Capture selected non-health outcomes
  – Improve interactivity to facilitate bespoke local level analyses
The economic model

- A Microsoft Excel based model to assist planners and commissioners involved in public health
- Markov model, following a cohort of current smokers over their lifetime to identify costs and outcomes
- Results are expressed in four time horizons:
  - 2 years (short term)
  - 5 years
  - 10 years
  - Lifetime
Markov process

- Considers cohort of current smokers
- Each year they become
  - Current smokers
  - Former smokers
  - Die
- Health outcomes and resource use driven by smoking status
The model ingredients

- Smokers and former smokers each have a risk of developing a number of smoking attributable conditions & death
  - CVD, MI, COPD, lung cancer
- Healthcare resource use, QOL/utility and productivity also dependent on smoking status
- Data sourced from widely accepted stats/literature
How the model works

- Model pre-populated with default data, although this can be easily over-written to reflect local knowledge/data
- Model categorises local population as never-smokers, current smokers or former smokers
- Current smokers continue to smoke or move to former smokers each year, reflecting quit rates
- Individuals exit the model as a result of death
Using the tool to build a business case

How much is tobacco costing (Baseline scenario)?

How much does your Current Package of interventions cost you?

What are the benefits of the Current Package? Are there any savings to be made by local businesses, health and social care sectors as well as by people who don't smoke (passive smokers)?
## “Business case” scenarios

### Using the tool to build a business case

<table>
<thead>
<tr>
<th>Question</th>
</tr>
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<tr>
<td>Does the benefit outweigh the costs? If so, at what time point? What is the ROI of the Current Package?</td>
</tr>
<tr>
<td>To what extent can the savings made by local businesses pay for investment in the Current Package?</td>
</tr>
<tr>
<td>At what time point can the investment in cessation programmes pay for itself?</td>
</tr>
<tr>
<td>What potential improvements could you make by altering your current service provision (Alternative Package)?</td>
</tr>
</tbody>
</table>
Individual-level Interventions (Basic)

Use the below options to alter the overall allocation of smokers to the different intervention groups. You can exclude interventions from analyses by clicking the red 'stop' buttons.

To view/edit individual intervention allocations, click the Advanced button.

Local Stop Smoking Service (LSSS) Interventions
- Allocate [ ] of potential quitters to this group

Non-LSSS Cessation Interventions
- Allocate [ ] of potential quitters to this group

Cessation Interventions for Pregnant Smokers
- Allocate [ ] of pregnant smokers to this group

Harm Reduction Interventions
- Allocate [ ] of potential quitters to this group

GP-Led Cessation Interventions
- Allocate [ ] of all non-pregnant smokers to receive GP Brief Advice (on top of other treatments)

Proportion of total adult smoking population allocated to standard interventions: [ ]

Why don't the totals add up?

Click to reset ALL intervention settings to default: Reset All

Click to allocate smokers to individual interventions and view/edit your own custom interventions

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### Interventions Overview

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**Local Stop Smoking Service Cessation Interventions**

**Non-SSS Cessation Interventions**

**Specialist Adult Interventions**

### Net Present Value Analyses (Adult)

**Location:** London  
**Time Horizon:** Lifetime  

Find out more

**Average quasi-societal cost savings (per smoker)**

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<td>£44.58</td>
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<td>£86.30</td>
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<td>Alternative Package vs Current Package</td>
<td>£41.72</td>
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The sum of the quasi-societal cost savings per smoker less implementation cost per smoker. A positive saving indicates that the value of benefits exceeds the intervention costs.

**Select your time horizon:**

- **Lifetime**
- **1 years**

**Discounted cost rate:**

- **3.5%**
- **2.5%**

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#### Local Stop Smoking Services Cessation Interventions
- **Non-LSSS Cessation Interventions**
- **Specialist Adult Interventions**

**Current Package vs Baseline**
- **Current Package**
  - Total cost of ALL interventions: £37,322,937
  - Number of additional quitters per 1,000 smokers as a result of interventions: 24
  - TOTAL number of additional quitters in London: 29,181

**Alt. Package**
- Total cost: £40,711,876
- Additional quitters: 36
- TOTAL additional quitters: 45,668

Select your time horizon:
- **Lifetime**
- Discounted cost rate: 3.5%

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### Incremental Cost-Effectiveness Ratio (Adult)

**Location:** London  
**Time Horizon:** Lifetime

**Per QALY gained**

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If the ICER is less than a decision maker’s willingness to pay for the unit of benefit, the intervention can be considered cost effective. If the intervention is both less costly and leads to more units of benefit than the comparator it is dominant and therefore cost saving.
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Avoidable Burden of Disease Analysis (Adult)

Location: London
Time Horizon: Lifetime

QALYs gained (per 1,000 smokers)

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The sum of the quasi-societal gains as a result of your package of interventions

Select your time horizon: Lifetime

Discounted cost rate: 3.5%

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Practical example

Making Business Cases for:
• Current practice (i.e. the existing provision)
• Practice variation (i.e. doing things differently)

Discussion to be based on handouts:
1) Report of current practice
2) Report of alternative practice