Developing a Monitoring and Assessment Framework for the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA)

MAFEIP-PROJECT

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The views expressed are those of the author and may not in any circumstances be regarded as stating an official position of the European Commission!
MAFEIP
Key requirements

- Synthesising *best available evidence* from multiple sources
- Allowing *adaptation* to different interventions, populations, care contexts
- Ensuring *consistency* in methods whilst minimizing duplication
- Allowing *early* and *iterative* assessment of innovation
- *Remote access* through web-implementation
- *Data transfer* to IPTS for assessing EIP on AHA objectives
- *Intuitive* user-interface to minimize need for third party support
- *User-support* strategy with seminars, workshops and tutorials
**MAFEIP Approach**

- **Dominated** (more expensive & worse)
- **Dominant** (cheaper & better)

Comparators:
- $\Lambda_1 = 10.000$
- $\Lambda_2 = 20.000$
- $\Lambda_3 = 80.000$

Question mark indicates a trade-off between cost and effectiveness.
Baseline health
Deteriorated health
Dead

P-death (baseline)
(age, gender &
country-specific
baseline mortalities
provided by MAFEIP-
tool)

P (fall)

1 - P(fall)

P-death (deteriorated health)
(baseline + excess mortality
from falls)

P=1

HRQoL
Cost

Before fall
After fall

Dead

MAFEIP Model

Joint Research Centre
Early modelling of falls prediction device*

- A number of indoor falls happen while rising from beds/chairs, and in some cases this may be due to postural hypotension

- To which extent is it possible to predict falls due to standing hypotension by using HRV and wearable devices?

* With permission from L. Pecchia, Applied Biomedical Signal Processing and Intelligent eHealth (ABSPIE) Lab, University of Warwick
Early modelling based upon:

**Expert Opinion:**

- Which proportion of falls among elderly at home / in nursing homes / in the hospital could be avoided with a device that can predict a sudden drop in blood pressure based on the ECG of an individual during the last five minutes before rising?

**Secondary data:**

| Discount factors (NICE, 2008) |  
| Costs | 3.50%  
| Effects | 3.50%  

| Alive transition probabilities (mainly UK-DH, 2009) |  
| Incidence (current care scenario) | 0.3  
| 'Recovery' (current care scenario) | 0.7  
| Incidence (intervention scenario) | 0.2541  
| 'Recovery' (intervention scenario) | 0.7459  

| Relative risks (mortality) (human mortality database) |  
| Deteriorated health (current care scenario) | 1.373  
| Baseline health (intervention scenario) | 1  
| Deteriorated health (intervention scenario) | 1.373  

| Resource use weights (various sources) |  
| Baseline health | 0  
| Deteriorated health | 3674.92  

| HRQoL weights (Thiem et al., 2014 & EuroQol) |  
| Baseline health | 0.811  
| Deteriorated health | 0.7553  

| Cost of intervention (by analogy – REFINE-study) |  
| GBP per user per year | 130.00  

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**Case study**

**Input data**

![Graph showing the distribution of expert opinion and fitted probability distribution.](image-url)
The planned device would be cost neutral at an effectiveness of 13.7% (reduction in fall probability).

Device reaches WTP threshold of 30,000 GBP/QALY at a reduction in falls probability of 5.8%.

The planned device would be cost neutral at an effectiveness of 13.7% (reduction in fall probability).

**Base case:** assuming achievable reduction in falls of 15% and cost of device of 130GBP / year would result in annual cost savings of **149GBP** and **0.065 QALYs** gained.
Case study

Results

ICER vs. device effectiveness

- Minimum 'reimbursable effectiveness' at $\lambda = 30.000$
- $\lambda = 30.000$
- $\lambda = 0$
- $0 \leq \lambda \leq 30.000$
- $\lambda = 30.000$
- $0 \leq \lambda \leq 30.000$
- $13.7\%$
- $5.8\%$

ICER vs. device cost

- Maximum reimbursable cost of intervention at $\lambda = 30.000$
- $\lambda = 30.000$
- $\lambda = 0$
- $145$ GBP
- $341$ GBP
Probabilistic analysis

Parameter distributions

Minimum reimbursable effectiveness at $\lambda = 30,000$

Maximum reimbursable cost at $\lambda = 30,000$
• The MAFEIP-tool can be applied to assess technologies even at an early stage of development

• It does so by using methods conventionally used for informing 'decisions to buy' (demand-side) into the development process of a new technology ('decision to invest')

• Hence, with MAFEIP we can take on an 'investors perspective', which is particularly interesting for the EIP on AHA (and other policy initiatives) as
  ➢ The Partnership aims at identifying and scaling up innovations to improve AHA
  ➢ It is still a 'young' policy initiative, with interventions at an early stage of development and
  ➢ The information available about respective technologies is typically scarce and scattered

• In this context, the MAFEIP tool can be a useful for assessing the potential of a new technology, which in turn, may provide valuable information for
  ➢ The developer of a technology to decide upon further investment and
  ➢ The EIP on AHA, to provide the right support for respective innovations so that they can progress faster to the next stage of development
Buxton's Law*

*It is always too early (for an economic evaluation)* until, unfortunately, it’s suddenly too late!

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Some relevant literature
(all open access)


• BOEHLER C, ABADIE F (2015) Monitoring and Assessment Framework for the European Innovation Partnership on Active and Healthy Ageing (MAFEIP) - *Conceptual description of the Monitoring and Assessment Framework for the EIP on AHA*. European Commission, DG Joint Research Centre, Institute for Prospective Technological Studies (EUR 27412); DOI: 10.2791/290381

• BOEHLER C, ABADIE F, SABES FIGUERA R (2014) Monitoring and Assessment Framework for the European Innovation Partnership on Active and Healthy Ageing (MAFEIP) - *Second report on outcome indicators*. European Commission, DG Joint Research Centre, Institute for Prospective Technological Studies (EUR 27034); DOI: 10.2791/171684

• ABADIE F, BOEHLER C, LLUCH M, SABES FIGUERA R (2014) Monitoring and Assessment Framework for the European Innovation Partnership on Active and Healthy Ageing (MAFEIP) - *First report on outcome indicators*. European Commission, DG Joint Research Centre, Institute for Prospective Technological Studies (EUR 26826); DOI: 10.2791/12311


More information on MAFEIP:
http://is.jrc.ec.europa.eu/pages/TFS/MAFEIP.html