

RESEARCH AGENDA FOR HEALTH ECONOMIC EVALUATION

Background Document

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Introduction

The financial sustainability of publicly funded universal access health systems in Europe is currently endangered by the combined forces of among other things population ageing, technological progress and limited financial resources (Pammolli, Riccaboni, & Magazzini, 2012). Chronic and non-communicable disease and associated treatments drive a significant proportion of costs, highlighting the importance of early detection and prevention (R Busse, Blumel, Scheller-Kreinsen, & Zentner, 2010). Over the recent decades, expenditure on health systems in EU countries has risen from on average 6.6% of GDP in 1998 to 7.4% in 2008, with further increases expected. These developments raise increased demands on the effectiveness and cost-effectiveness of EU health systems, which must respond to both increasing health challenges and a more restricted budgetary context (EC, 2010).

The following sections describe in more detail the demographic and macroeconomic context contributing to the current fiscal strains, followed by an outline of how economic evaluation is currently applied to address some of these trends, and how the present project adds to this scenario.

Demographic and macroeconomic context

Populations of the European Union (EU) are ageing, with the proportion of inhabitants aged 65 or over in many cases projected to increase significantly by 2050, accounting for between a quarter and one third of the population (Figure 1). Concurrently, the proportion of working age population has been decreasing over the past decades, with the EU average old age dependency ratio rising from just over 20% in 1980 to 27% in 2012 (Figure 2).

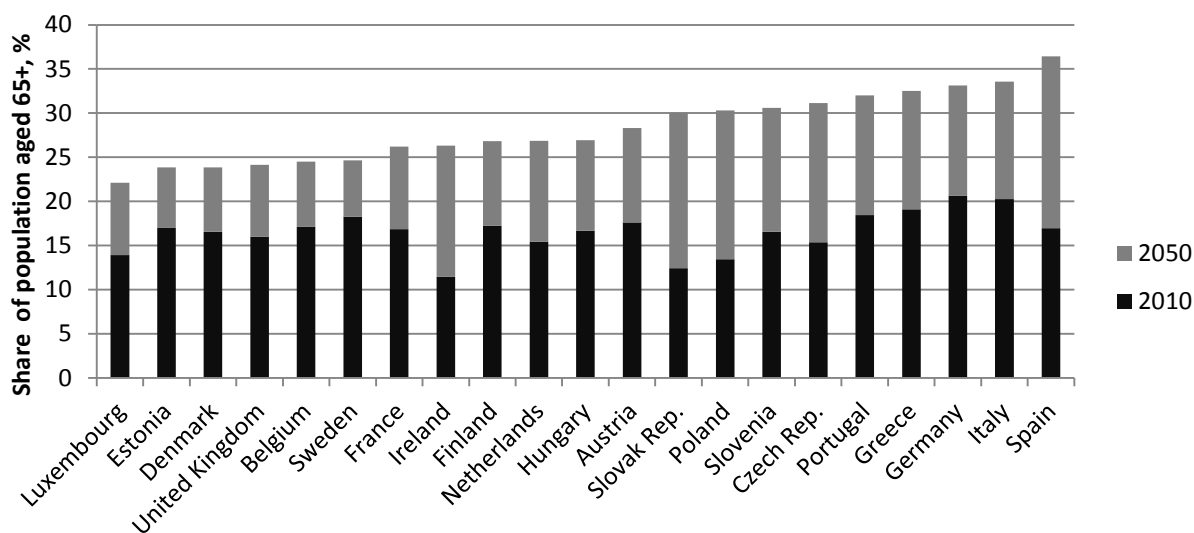


Figure 1 Proportion of population aged 65 years or over in 2010 and projected to 2050 (OECD, 2013)

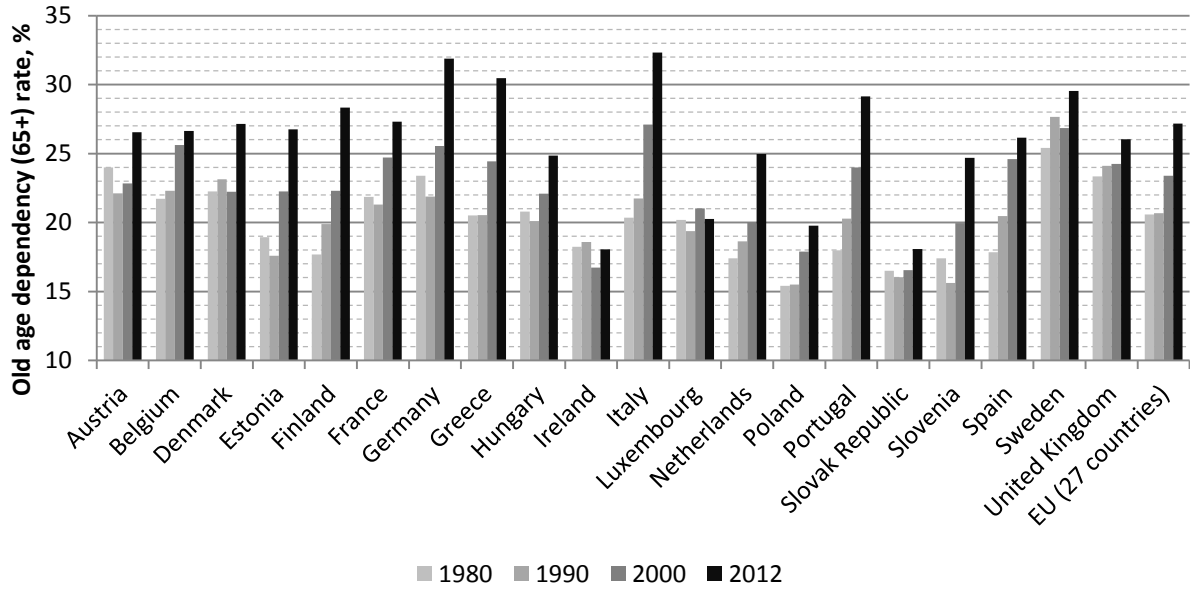


Figure 2 Old age dependency ratio (65+) across EU from 1980 to 2012 (OECD, 2014)

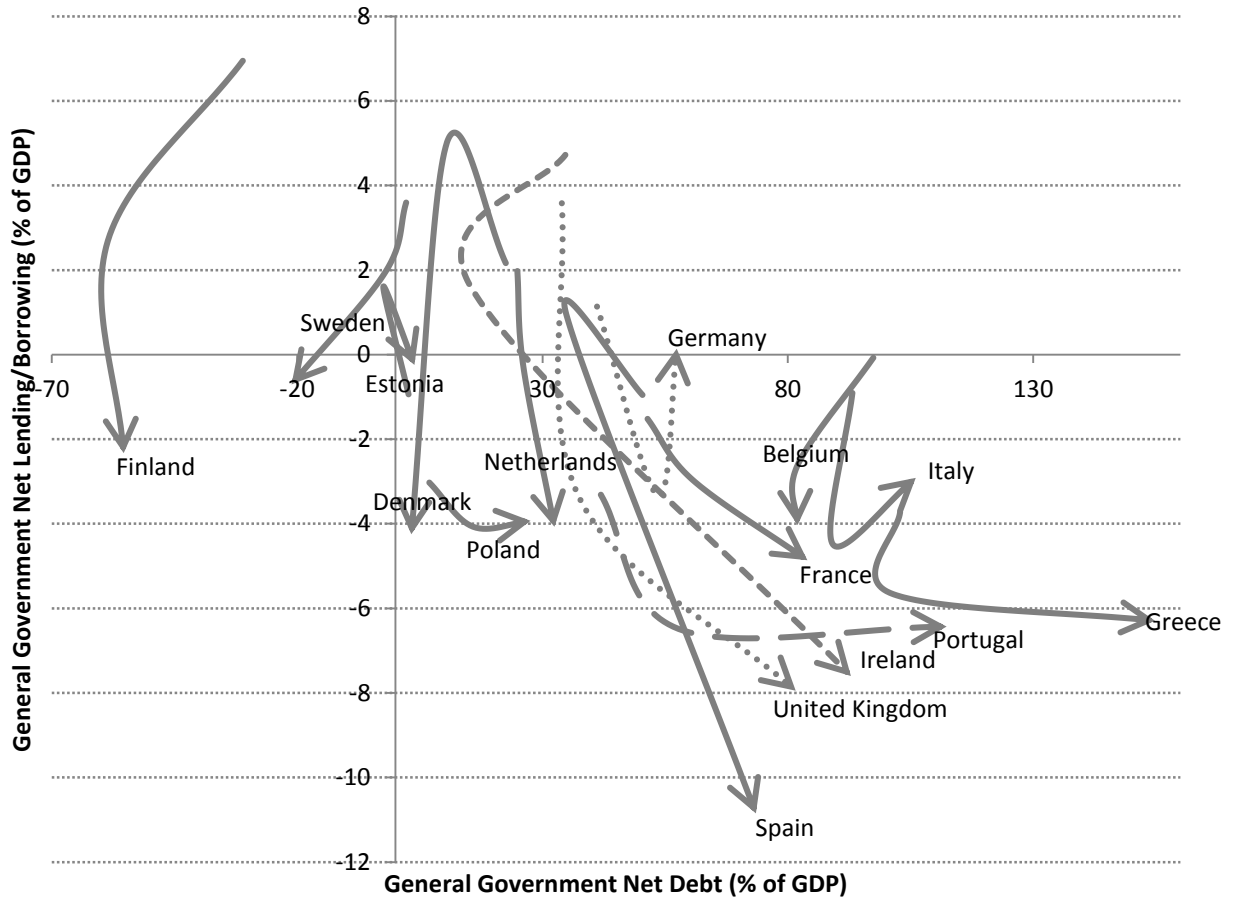


Figure 3 Levels of general government net debt (horizontal axis) and general government net lending/borrowing (vertical axis) as % of GDP from 2000 to 2012 (IMF, 2013)

At the same time, the level of indebtedness has increased in many countries. With the exception of Finland and Sweden who both had a positive balance of government financial assets in 2012, Figure 3 shows an increase in general government net debt for most countries, in many cases reaching levels above 80% of GDP. In coping with this situation, countries implementing severe austerity measures including Greece, Portugal and Spain have experienced increasing strains on their health systems, reducing access to care and increasing the suicide rate and outbreaks of infectious disease (Karanikolos et al., 2013). A variety of policy responses were seen across European countries in response to the crisis, including expansion of benefits for low-income groups and reduction of health professional wages, but few countries moved to strengthen their public health and health promotion programmes (Mladovsky et al., 2012).

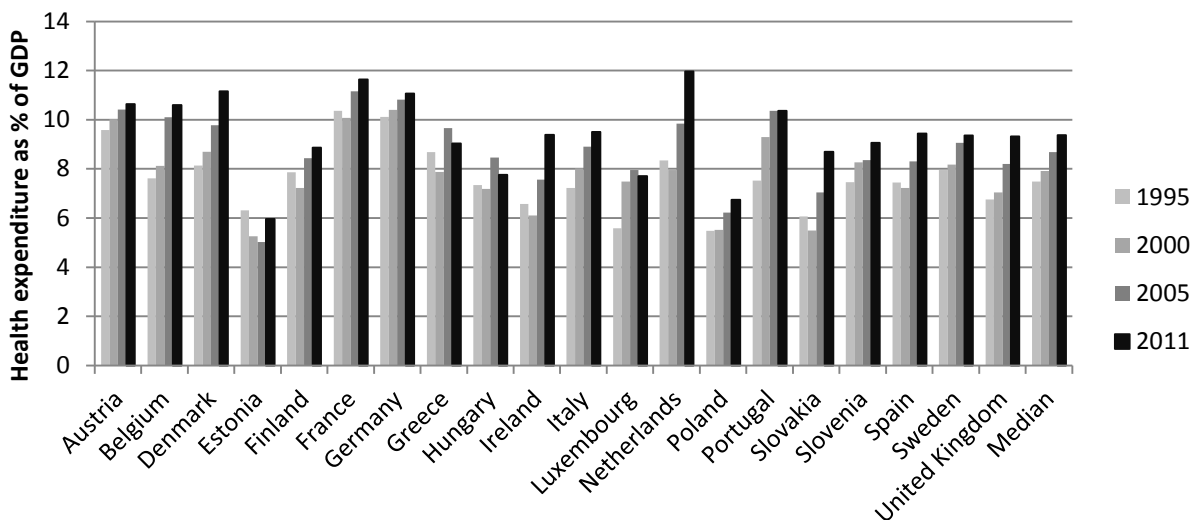


Figure 4 Total health expenditure as proportion of GDP (WHO, 2013a)

Despite strains on government budgets, total expenditure on health has risen faster than GDP in most EU countries, including the years after the 2008 crisis. In the 20 EU countries for which data is available since 1995, median health expenditure has risen steadily from 7.5% of GDP (1995) to 9.4% in 2011, in 2011 accounting for between 6.0% (Estonia) and 12.0% (Netherlands) of GDP (Figure 4).

Economic evaluation as a policy tool

With rising pressures on public budgets and associated demographic and health related challenges, governments within the EU need to improve the cost-effectiveness of health systems by investing in services and interventions which deliver the best health outcomes most efficiently (EC, 2010).

Finance ministries often view pharmaceuticals as an area of expenditure where significant savings can be made¹, and in the past decade pharmaceutical spending as a proportion of total health spending has been reduced in many countries (Figure 5).

¹ OECD Survey on Budget Practices and Procedures, 2013 (unpublished, Francesca Colombo, OECD)

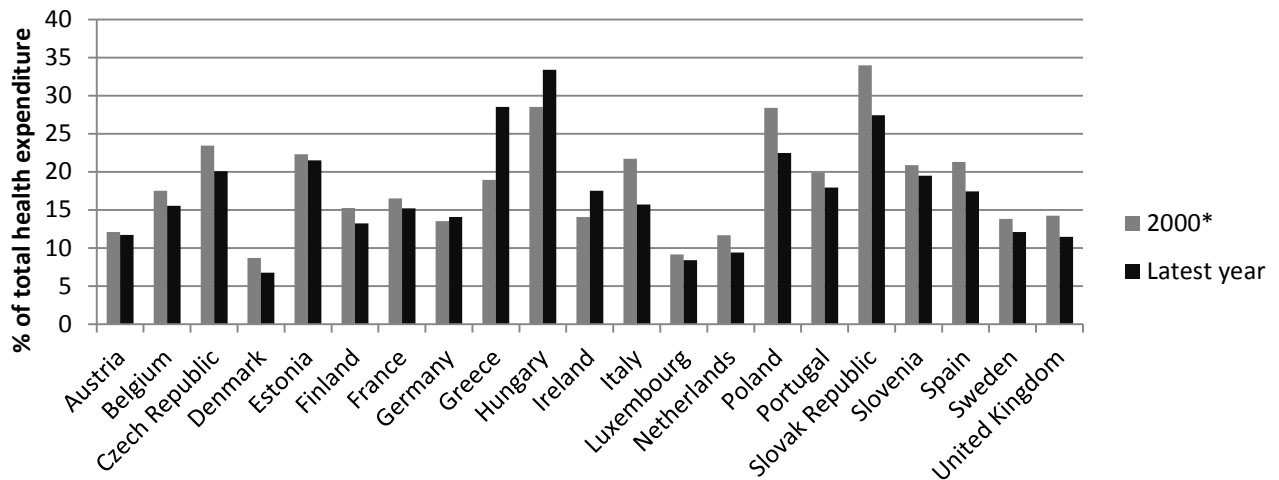


Figure 5 Pharmaceutical spending as percent of total health expenditure in 2000 (or nearest year) and latest year available (2008-2012) (OECD, 2014)

This has been concurrent with increasingly widespread use of Health Technology Assessment (HTA), the systematic analysis of existing clinical effectiveness and economic data for coverage decisions on novel technologies (Banta, 2003). However, HTA has so far mainly been applied to technologies which are under consideration for investment, and not for the many existing procedures and technologies making up a health system, and disinvestment in existing services can be associated with technical, political and other challenges (Elshaug, Hiller, & Moss, 2008; Elshaug, Hiller, Tunis, & Moss, 2007).

Against rising health expenditures and distressed public budgets, it is increasingly important for health insurers and service commissioners to consider value for money when compiling national benefit packages in order to ensure continued quality of care and to fulfil the health needs of the population. Health economic evaluation can be a useful tool in this decision making process, by providing the purchaser with information on the relative costs and effects of alternative interventions, allowing the most efficient option to be purchased and thereby spending the health care budget in the most efficient way (Michael Drummond, Sculpher, Torrance, O'Brien, & Stoddart, 2005).

The availability of health economic evidence has increased dramatically in recent years, as evidenced by the large number of citations in specialist health economic databases as early as 2005, where the NHS Economic Evaluation Database (NHS EED) and Health Economic Evaluations Database (HEED) counted over 16,000 and 31,750 citations, respectively (Aguar-Ibáñez et al., 2005). However some evidence points toward difficulties in applying the evidence in practice due to capacity constraints and institutional barriers, including misalignment between the economic assumptions of economic studies and the budgetary realities of service providers at the regional and local level, for example an inability to take future costs and savings into account (Buxton, 2006). Other barriers include perceived quality of the economic evidence or ethical concerns when economic evaluation is seen as cost-cutting (Hoffmann et al., 2002). In addition, there has been limited focus on the economic benefits of prevention and public health programmes, for which the traditional methods of economic evaluation may not always be entirely appropriate (Phillips & Hotlgrave, 1997). The *Economics of Prevention* project of the

OECD, WHO and the European Commission is addressing these methodological issues and applying the new framework to the assessment of policies linked to diet and physical activity (OECD, 2012).

Context of the project

In the Tallin Charter, adopted at the WHO European Ministerial Conference on Health and Health Systems in 2008, member states of the World Health Organization Regional Office for Europe (WHO/Europe) committed to improving population health by strengthening health systems and addressing major health challenges in the context of epidemiological and demographic change, widening socioeconomic disparity, limited resources, technological development and rising expectations (WHO, 2008). In the 2013 follow-up meeting, Health systems for Health and Wealth in the Context of Health 2020, member states commitment to the Charter was reaffirmed (WHO, 2013b).

WHO/Europe supports its member states in developing, advancing, and sustaining their national health policies, health systems, and public health programmes. It works very closely with the ministries of health both at the international and national levels. Within this overall framework, WHO/Europe promotes tailored strategies and programmes addressing a wide range of issues related to public health and health care systems to support government actions at all levels. WHO actively promotes the use of economic evaluation in the context of health system planning, including both therapeutic and preventive areas, and has produced a workbook in collaboration with other UN agencies to build capacity among health planners, managers and other decision-makers on the use of economic evaluation of specific services (WHO, 2000). In the early stages of the financial crisis, WHO/Europe in cooperation with the Norwegian Health Ministry held a meeting in Oslo to consider health in the context of the crisis. During this meeting, it was stressed that cost-effective public health and primary health care services need to be protected from budget cuts, while at the same time the most cost-effective treatments and technologies should be selected (WHO, 2009). In a 2013 follow-up meeting WHO/Europe member states again convened in Oslo to review the impact of the economic crisis on health and health systems in Europe and to derive lessons for the future from the policy responses observed during the financial crisis (WHO, 2013c).

Within the framework of the 2011 Health Programme work plan, the European Commission has proposed WHO/Europe to carry out a study to identify priorities for a research agenda on Health Economic Evaluation (HEE) on therapeutic fields of relevance for the EU to fill knowledge gaps around HEE. This study, for which the present document lays out the background, aims to outline the existing health economic evidence for the ten conditions responsible for the highest burden of disease in the European Union, and make recommendations for the EC based on the identified knowledge gaps.

The report starts with definitions of relevant terms in health economics, followed by the methodology of the project and important limitations. In the final section, preliminary findings are described.

Definitions

Several terms and expressions are used in the area of health economics, sometimes interchangeably, raising a need to define such terms for the purposes of the project. The

following sections deal with the major terms used in the RAHEE project.

Cost-benefit analysis

The term cost-benefit analysis (CBA) became increasingly common in and after the 1960's, where Prest and Turvey described the analysis as a “*practical way of assessing the desirability of projects*” by “*drawing on a variety of traditional sections of economic study – welfare economics, public finance, resource economics – and trying to weld these components into a coherent whole*” (Prest & Turvey, 1965). Although the term covers a broad range of methods and concepts in economics as reviewed in various text books (Quah & Mishan, 2007) the main difference from other forms of economic evaluation discussed here is that CBA places a monetary value on both the inputs (costs) and outputs (benefits) of health care, by applying one of several potential approaches (such as the human capital approach or observed/stated preferences) to value human life (Robinson, 1993). While being the most general of economic evaluation tools allowing comparison between health and other spending priorities, CBA is less favoured for the analysis of health care than cost-utility and cost-effectiveness (Anell & Norinder, 2000).

Cost-effectiveness analysis

Cost-effectiveness analysis (CEA) is less general than CBA in that a non-monetary unit is used for the outcome variable which must be common between the interventions analysed, for example blood pressure or years of survival. The main limitation of CEA in this form is that only related interventions can be compared, for example a choice between two interventions to treat the same condition (Michael Drummond et al., 2005). It was recognised early on that life years gained are not necessarily a meaningful denominator unless quality of life is also accounted for (M C Weinstein & Stason, 1977), and as CEA has become largely synonymous with cost-utility analysis (eg. McCabe, Claxton, & Culyer, 2008) we focus on this point below.

Cost-utility analysis

Cost-utility analysis (CUA) is a special case of CEA where the outcome variable is Quality Adjusted Life Years (QALY's). QALY's are an attempt to weight the change in life expectancy by the quality of life (QoL) experienced during that period (Milton C Weinstein, Torrance, & McGuire, 2009) and the tools used to estimate the quality weight can also be used to assess changes in QoL in conditions where life expectancy is not directly affected such as obesity (Sach et al., 2007) or chronic conditions such as back problems and anxiety (Saarni et al., 2006). The broad applicability across therapeutic areas means the QALY has been accepted as one of the main outcome variables in the assessment of new health technologies in Health Technology Assessment (HTA) agencies across Europe. Consequently, when economic evidence is used to decide on the reimbursement of new medical technologies, the bottom line is often based on a cost-per-QALY figure (Sorenson, Drummond, & Kanavos, 2008).

Methodology

Steering Committee

The project execution is supported by input from a panel of eight experts. The experts are convened three times over the course of the project to provide input to the overall methodology, assess progress of the work and finally to help integrate the recommendations of the high level expert panel into the work. Members of the steering committee and their professional affiliations are presented in Table 1

Identification of diseases

The 10 conditions representing the highest burden of disease in the European Union (EU) are selected based on Disability Adjusted Life Years (DALY's) from the Global Burden of Disease (GBD) study (Murray et al., 2012)².

Table 1 Steering Committee

Steering committee members and affiliations
Guy Dargent - Senior Project Officer; EC Executive Agency for Health and Consumers; Luxemburg
Jaime Espin - Professor; Andalusian School of Public Health, Granada, Spain
Christian Leonard - Deputy General Director; Belgian Health Care Knowledge Centre; Brussels, Belgium
David McDaid - Senior Research Fellow; London School of Economics; London, UK
Martin McKee - Professor; London School of Hygiene and Tropical Medicine; London, UK
Valentina Rupel - Senior Researcher; Institute for Economic Research; Ljubljana, Slovenia
Franco Sassi - Senior Health Economist; OECD; Paris, France
Mark Sculpher - Professor; University of York; York, UK

Health economic databases

Several databases containing references to health economic literature are available with varying scope and inclusion criteria, facilitating access to health economic evidence for researchers and decision-makers (Aguar-Ibáñez et al., 2005). Though such databases are intended to be relatively comprehensive in coverage, it has been shown that not all relevant economic evaluations are included, and that some references included do not represent true economic analyses. Due to an inherent lag in database updating, when reviewing evidence from the past 3-5 years it is suggested to supplement health economic database searches with other database

² List of high burden conditions for European Union+EFTA was derived from <http://www.healthmetricsandevaluation.org/gbd/visualizations/gbd-arrow-diagram>

searches (Sassi, Archard, & McDaid, 2002).

Since there is significant overlap between various health economic databases, it was considered both prudent and pragmatic to select one database for analysis. In order to select the most comprehensive database, lists of journals and inclusion/exclusion criteria were collected from the publishers of the main databases NHS EED, HEED, PEDE, CEA Registry and EconLit. These lists were compared to give an indication of the coverage of each database. As shown in Table 2, the database NHS EED covers the most extensive range of journals as compared to the other databases, covering 80% of the journals indexed by HEED, 95.7% of those indexed by PEDE, all of the journals indexed by the CEA Registry and 18.8% of those in EconLit.

Table 2 Proportion of other health economic databases (columns) covered by each database (assessed by journal)

	Coverage of				
	NHS EED	HEED	PEDE	CEA Registry	EconLit
NHS EED	100.0%	80.0%	95.7%	100.0%	18.8%
HEED	6.1%	100.0%	5.9%	18.9%	1.4%
PEDE	100.0%	80.6%	100.0%	100.0%	100.0%
CEA Registry	16.9%	41.9%	16.2%	100.0%	1.2%
EconLit	1.0%	0.9%	4.9%	0.4%	100.0%

Based on search strategy coverage and scope of the various databases (Aguilar-Ibáñez et al., 2005) and expert recommendations of the Steering Committee, the database NHS EED is selected for use in the present project.

Search strategy

The aim of the project is to outline existing health economic evidence for 10 specified conditions. This can be achieved in a variety of ways, including a full systematic review of the evidence. However it is the opinion of the project leaders and Steering Committee that a more appropriate approach is to review existing literature reviews focusing on the selected conditions, as well as documents generated under relevant EU funded research projects, in order to leverage existing evidence and avoid duplication of work.

A tiered approach is consequently adopted to identify existing health economic literature, with the purpose of capitalising on existing work and evidence:

- 1) Specialists in the relevant disease areas will be consulted to assess whether recognised systematic reviews are available, or to identify important studies in the field, as

appropriate. Sources include peer-reviewed literature and selected national HTA agencies as part of assessments: NICE (UK), CADTH (Canada), PBAC (Australia)

- 2) If required, existing EU funded research projects that include an assessment (review) of the health economic literature will be analysed. If considered appropriate, funding agencies outside Europe may also be consulted, including: National Institute of Health (US) and Canadian Institutes of Health Research (Canada) [formerly Medical Research Council of Canada].
- 3) If tiers (1-2) do not provide sufficient evidence, we perform a “shallow” review, consisting of: A search of the HEE evidence available in the NHS EED database³, outlining the number of articles by type according to the relevant categories.

All searches will be performed using the PubMed/MEDLINE database. In order to use only updated information, the time frame examined will span 2009 to 2013 inclusive. Search parameters and sources are given in Table 3.

Table 3 Search parameters and data sources

Search parameters and data sources	
PubMed/MEDLINE database	http://www.ncbi.nlm.nih.gov/pubmed
Systematic review search terms	review AND (cost-benefit OR cost-utility OR cost-effectiveness) AND x*
Project listings databases for European Commission, National Institute of Health, Canadian Institutes of Health Research	http://open-data.europa.eu/en/data/dataset?q=cordis http://exporter.nih.gov/ExPORTER_Catalog.aspx http://www.cihr-irsc.gc.ca/e/38021.html
NHS EED	http://www.crd.york.ac.uk/CRDWeb/

* where x is a condition specific term. *Each condition x is represented by a separate search*

In order to validate the results of steps 1-3 above and identify any additional important evidence, consultation with one specialist in each disease area is carried out. The specialist will be an authority on the health economics of the condition in question, identified by a ranking of authors who have contributed studies to each field in terms of number and impact of publications.

High level expert panel

A panel of 15-20 high level experts will be convened to discuss the results of the evidence review and case studies, and research recommendations will be outlined based on the identified knowledge gaps. The expert panel will comprise of experts in health economics, public health, and policy makers including if possible existing or former ministers. The methodology used for this expert consultation will be either based on the “Delphi Exercise” as applied to the WHO workshop format or using a simple consensus approach. The consultation will outline research

³ <http://www.crd.york.ac.uk/CRDWeb/>

priorities classified as high priority and other research needs. Additionally, the consultation will address recommendations on how the research agenda could be implemented.

Case studies

In order to identify institutional capacities and other factors associated with effective use of health economic evidence, a series of four case studies (Poland, Slovenia, Belgium and the United Kingdom) will be carried out. These studies will all be based on preventive or proactive interventions (including public health and screening interventions), and will outline in detail the intervention and associated economic and clinical evidence, the process of implementation and the outcomes. Relevant lessons will be extracted and presented. If appropriate, issues for further research will be identified and included in the list of research recommendations.

Limitations and methodological issues

Several constraints should be noted that arise from technical and methodological limitations which are too complex to be systematically and exhaustively addressed within this project. These are presented and discussed in the following sections.

Limitations of the QALY and associated methods

A diverse body of literature has evolved around the QALY as a policy tool and the techniques used to elicit quality weights, too extensive to be accurately summarised here, but some general remarks can be made. Importantly, methods for estimating QALY weights must capture individual preferences for health states in a valid and unbiased way, though different methods of direct elicitation (time-tradeoff, standard gamble and rating scale) have been shown to produce different results (Bleichrodt & Johannesson, 1997).

Due to the relative complexity of applying these economic instruments in practice, several questionnaire based tools have been developed, most notably the EQ-5D (Brooks, 1996; EuroQol, 1990), the SF-6D (Brazier, Usherwood, Harper, & Thomas, 1998) and the HUI-II and -III (Horsman, Furlong, Feeny, & Torrance, 2003). Despite offering a convenient approach to valuing health states, the questionnaire tools differ in subtle but important ways making the choice of questionnaire important for the economic evaluation (Brazier, Deverill, Green, Harper, & Booth, 1999; Coons, Rao, Keininger, & Hays, 2000; Grieve, Grishchenko, & Cairns, 2009). For certain types of conditions generic tools may not be appropriate, such as the use of EQ-5D in some domains of mental health (Brazier, 2010), and in general comparison between condition specific and generic tools suggests there are aspects of health related quality of life which are not captured by generic instruments (Tordrup, Mossman, & Kanavos, 2014).

In practice, a variety of tools are used to estimate the health benefit gained in the economic assessment of interventions (Räsänen et al., 2006), and consequently a QALY in one study is not necessarily equivalent to a QALY in another. For the purposes of this work however we do not discriminate between methods for estimating QALY's.

Quality of health economic evidence

A variety of approaches have been taken in the field of evidence based medicine to grade the quality of evidence available for clinical decision making. Generally types of evidence are classified hierarchically according to the type of study, with the synthesis of several randomised controlled trials considered the highest standard (Atkins et al., 2004). In the field of health economics where the typology of work is different, quality appraisal has generally been proposed in the form of elaborate check lists to ensure that all relevant considerations have been covered by the authors. The Cochrane Handbook for Systematic Reviews of Interventions includes as a special topic the critical appraisal of health economic methodology (Higgins & Green, 2011). The handbook recommends the British Medical Journal checklist (M. F. Drummond & Jefferson, 1996) and the Consensus on Health Economic Criteria (Evers, Goossens, de Vet, van Tulder, & Ament, 2005) for economic evaluations conducted alongside single effectiveness studies and partial economic evaluations. The “Good Practice Guidelines” are recommended for economic decision-analytic modelling studies (Philips et al., 2004).

A recent comparison of quality appraisal tools highlighted the subjective nature of several check list items phrased with the terms “appropriate” and “justified”, and identified the Quality of Health Economic Studies (QHES), which is not explicitly recommended by the Cochrane Handbook, as the only tool which includes a summary score (Chiou et al., 2003; Langer, 2012). In addition, to represent a meaningful measure of quality a significant time investment by the analyst is required to assess a health economic study according to these check lists, requiring an in-depth review of the methodology and assumptions applied.

For the reasons outlined above, it is considered beyond the scope of this study to make assertions on the quality of the health economic evidence reviewed, and consequently this will not be systematically attempted. Illustrative examples of high or low quality evidence may be provided if relevant.

Multi-morbidity and risk factors

The occurrence of multi-morbidity is increasing in prevalence due at least in part to lowered thresholds for diagnosis, inclusion of new diagnoses and an actual increase in prevalence of certain conditions (Starfield, 2011), and cost of care is significantly higher in patients with multiple morbidities (Wolff, Starfield, & Anderson, 2002). Though not in all cases, clinical guidelines generally focus on a single condition, leaving particularly primary care clinicians without guidance for routinely managing patients with multiple morbidities (Dawes, 2010). Disease Management Programs are increasingly being considered as a way to manage such patients, but relatively little economic evidence has been produced in this field partially due to lack of an appropriate economic framework (Tsiachristas, Cramm, Nieboer, & Rutten-van Mülken, 2013).

Similarly, a significant proportion of the population is exposed to more than one risk factor for eg. chronic disease (Fine, Philogene, Gramling, Coups, & Sinha, 2004), and understanding the contribution of each individual risk to the probability of developing a disease is not necessarily straightforward (Lim et al., 2012).

This report does not consider the economic consequences of interactions between multiple

morbidities or concurrent risk factors, but considers only single conditions/risk factors in isolation.

Transferability

The cost of treatment and reimbursement to service providers tends to differ significantly across European countries (Reinhard Busse, Schreyögg, & Smith, 2008), and since economic evaluations are typically performed within a country context, based on the method of service delivery in that country and local cost of inputs, the results are not necessarily directly transferable. In addition, the cost and effectiveness of a treatment may differ between countries on account of demographic and epidemiological factors (O'Brien, 1997). Though some efforts have been made to improve this situation, including a suggested check list to measure the transferability of an economic study (Boulenger et al., 2005), health economic evidence cannot be considered *a priori* transferable. The significant discourse and methodological consequences surrounding this subject, summarised by Drummond and Pang (Michael Drummond & Pang, 2001), are not addressed in the present project, although the issue will be taken into account when identifying research priorities.

Implementation of evidence

Several factors can affect the use of health economic evidence in policymaking, including quality and transparency of the studies, transparency of the decision-making process and clarity and presentation of the economic evidence (Niessen et al., 2012). The same authors note that the volume of evidence is limited on this topic, with their search of the literature from 1991 to 2012 revealing only 43 studies on how economic evidence impacts healthcare decision-making (Niessen et al., 2012). An extensive survey performed in the UK with 283 prescribing advisors, 400 pharmacy directors and 101 directors of public health showed that inflexibility of budget flows, for example between primary and secondary care, and inability to free resources to adopt new therapies were seen as key constraints in applying health economic evidence in practice (M Drummond, Cooke, & Walley, 1997). A series of interviews with general practitioners (GP's) and stakeholders from hospital trusts and health authorities in the UK echoed these results. These stakeholders also suggested the presentation and focus of health economic evidence was not always relevant to decision making, and that greater integration between economic evidence and the way in which the health system is contractually organised would improve the relevance of evidence. The perspective was also different across professionals, with GP's focusing more on the individual patient and being less interested in cost-benefit and other health economic terms, and health authority stakeholders taking a wider population view with a more positive attitude to health economics (Duthie, Trueman, Chancellor, & Diez, 1999).

Considering the significant variation in health system structures across the EU, as well as the qualitative and somewhat elusive nature of the determinants of decision-making processes, we do not attempt to systematically determine common problems in the implementation of health economic evidence. Where possible we include evidence on the general use of health economic studies in practice, though implementation is considered mainly in the context of the planning of preventive and/or public health interventions as described in the section on case studies above.

Results

Highest burden of disease and related risks in the EU

The 10 conditions responsible for the highest burden of disease in the EU are derived from the Global Burden of Disease study (Murray et al., 2012) and listed in Table 4. The rankings from 1990 to 2010 show a marked stability in the conditions causing high burden of disease in the EU, with only road injury and self-harm being replaced by neck pain and other musculoskeletal disorders in the top 10.

Table 4 Burden of disease in EU in 1990 and 2010

Rank #	1990	2010
1	Ischemic Heart Disease	Ischemic Heart Disease
2	Stroke	Low Back Pain
3	Low Back Pain	Stroke
4	Lung Cancer	Major Depressive Disorder
5	Road Injury	Lung Cancer
6	Major Depressive Disorder	Falls
7	COPD	COPD
8	Falls	Diabetes
9	Diabetes	Other musculoskeletal
10	Self-harm	Neck pain

Source: (Murray et al., 2012)⁴

Risk factors responsible for the highest burden of disease are also addressed by the Global Burden of Disease study (Lim et al., 2012), and leading causes of DALY's incurred in the EU are given in Table 5.

Table 5 Risk factors associated with the highest burden of disease in 1990 and 2010

Rank #	1990	2010
1	Dietary risks	Dietary risks
2	High blood pressure	High blood pressure
3	Smoking	Smoking
4	High body-mass index	High body-mass index
5	High total cholesterol	Physical inactivity

Source: (Lim et al., 2012)⁵

⁴ Adapted from <http://www.healthmetricsandevaluation.org/gbd/visualizations/gbd-arrow-diagram> for the EU/EFTA region, both genders and all age: causes

Data sources and volumes

Preliminary results from a search for English language papers published in 2013 and indexed in MEDLINE or MEDLINE In-Process indicates approximately 100 papers will explicitly self-identify as “systematic reviews” of economic evaluations in the title or abstract. (Arber, Wood and Glanville, personal communication). This significant volume of health economic reviews published in a single year indicates sufficient availability of reviews to inform the present study.

In addition, a local database instance of projects funded from National Institutes of Health (USA), European Union Seventh Framework Programme and Canadian Institute of Health Research has been established with titles and abstracts to facilitate identification of relevant projects. As detailed in Table 6, most conditions examined in the present work with the exception of neck pain have been the subject of several EU FP7 research projects, yielding a source of potential collaborators and expertise in these areas.

Table 6 Number of potentially relevant projects in the EU FP7 research program

	Keyword in title	Keyword in abstract	Keyword and ‘economic’ in abstract
heart disease	9	69	3
Back pain	2	6	2
Stroke	23	106	15
Depression	11	82	15
Lung cancer	11	44	3
Falls	3	64	10
COPD	5	22	0
Diabetes	80	293	22
Musculoskeletal	8	43	3
Neck pain	0	0	0

⁵ Adapted from <http://www.healthmetricsandevaluation.org/gbd/visualizations/gbd-arrow-diagram> for the EU/EFTA region, both genders and all ages: risks

Summary

The Research Agenda for Health Economic Evaluation (RAHEE) project is an effort to establish a research agenda for the European Commission on the topic of health economic evaluation by providing an outline of existing evidence for 10 high burden conditions in the EU. In addition, the project will provide insight into the institutional factors and best practices associated with the use of economic evidence in the field of preventive and public health. These objectives will be achieved by summarising evidence from existing reviews of health economic evaluations, as well as reports and other outputs from recent research projects, in order to utilise existing evidence as widely as possible. Case studies of selected countries will allow identification of evidence gaps associated with the use of health economic studies in practice.

A committee of health economic experts (Steering Committee) has been appointed to oversee the methodology and progress of the project, and an expert panel with representatives from health economics, public health and various policy-making fields will be convened to discuss the results of the review and make recommendations for research.

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