Improved methods and actionable tools for enhancing HTA

Deliverable D4.3: Core dataset of social costs

Creating a database on unit costs in Europe of lost work time and the value of informal and formal care time of unit costs of health services.

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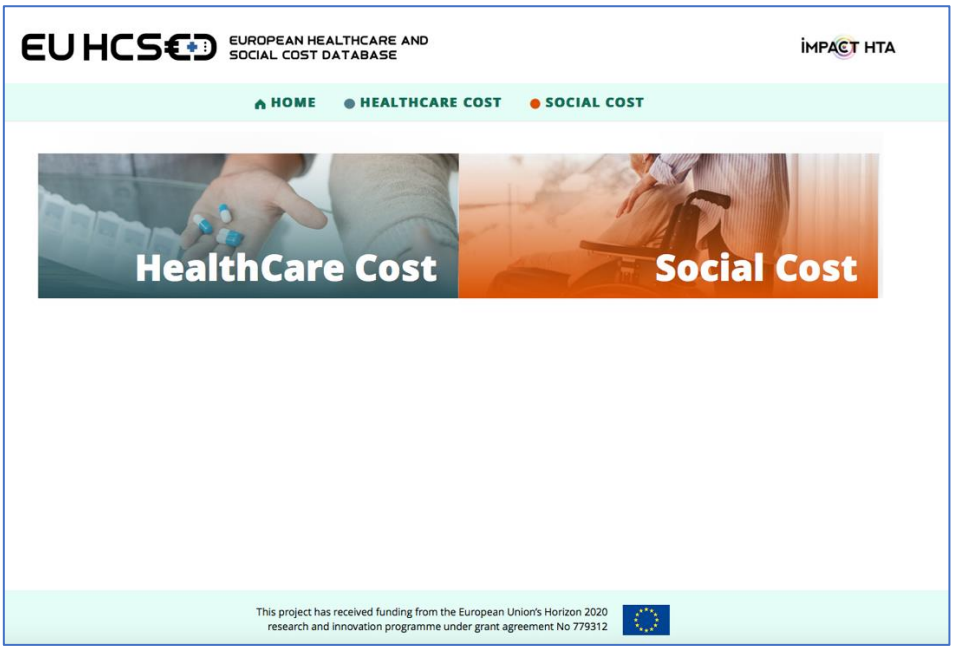
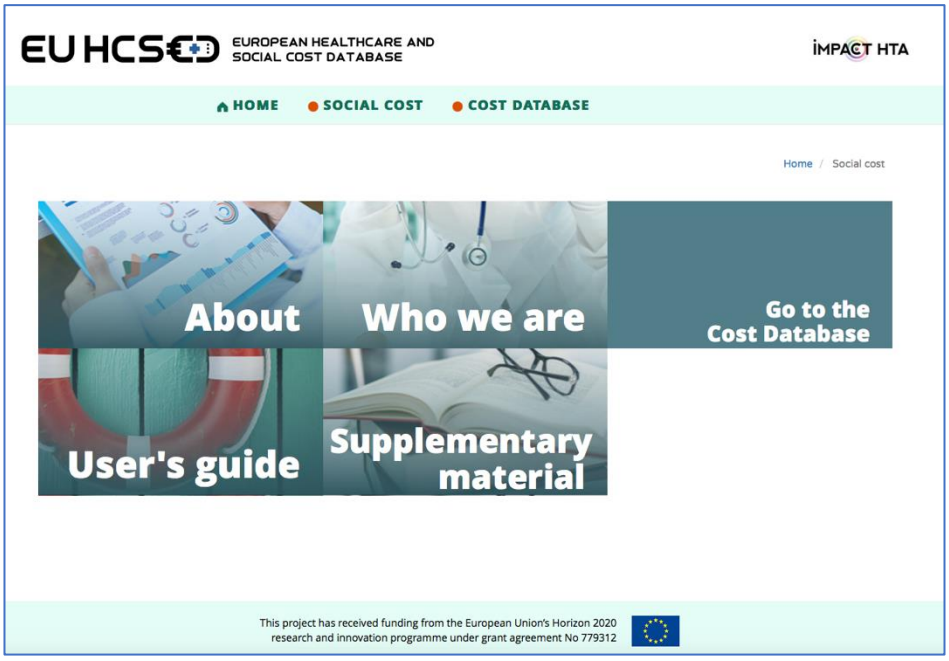
Database website public access

The following URL provide th e website where the core dataset of social costs is allocated together the unit costs included by EASP regarding the healthcare resources.

https://www.easp.es/Impact-Hta/Default

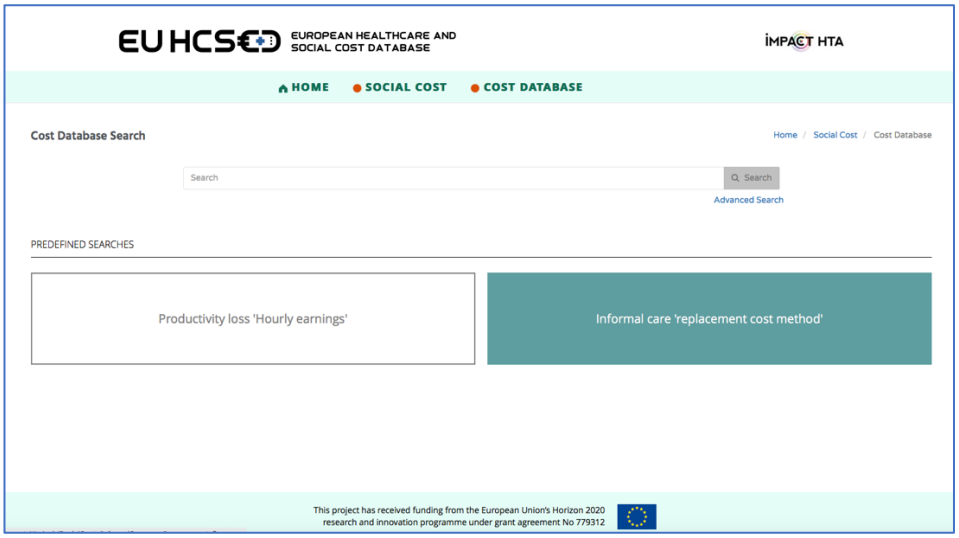


If the user click on 'Social costs' (https://www.easp.es/Impact-Hta/pub/SocialCost) the information is presented in the same way that is offered in the 'HealthCare Cost' section:



Information related to 'User's guide' or Supplementary material is available clicking on each subsection. Please, see User's guide & FAQ, Supplementary Material: Informal care unit costs bibliographical reference and Supplementary Material: Glossary to obtain more details about the information included in these subsections.

On the other hand, if the user click on 'Go to the database'(https://www.easp.es/Impact-Hta/pub/SocialCosts/CostDatabase_S), the website open a search option similar to the 'HealthCare Costs' section.



For details about how to conduct a search, users can obtain detail in the User's guide included in the User's guide abovementioned.

User's guide & FAQ

The following information is attached in the section of the website 'User's guide'

What kind of unit costs am I going to get in the European HealthCare and Social Cost Database?

The European HealthCare and Social Cost Database include both healthcare unit costs and data related to the estimation of social/societal costs in one easy and accessible website. 'Social costs' section offers you the following useful data to help you to estimate the most frequent costs included in the 'societal perspective' of economic assessment of health care technologies 'Productivity losses' and 'Informal care costs'.

How deep detail am I going to obtain the information provided in the 'Social costs' section?

Data collected in the 'Social costs' section include the following information by country, sex and age (when available)::

- Employment rates provided by official sources.
- Earnings, wages, provided by official sources.
- Number of monthly worked paid hours, provided by official sources.
- Unit costs for several non-healthcare resources (such as home care, telecare, nursing home/facilities, day care centre or respite services.)
- Unit costs for caregiving provided by professionals
- Unit costs for caregiving provided by non-professionals (informal)

Related to the literature reviews made for unit costs of informal care, they were made from 2000 to 2018, later updating the review data (mean and median) to the year 2018 for those estimations that used another base year, as 2018 was the year in which all the reviews were performed. For the rest of the items (labour productivity loses and social services), the year selected was the one found in the official sources that appeared in the database, collecting the latest data available. However, if the latest piece of data did not coincide with 2018 (the latest data available for some items, such as wages), the original data was updated to 2018

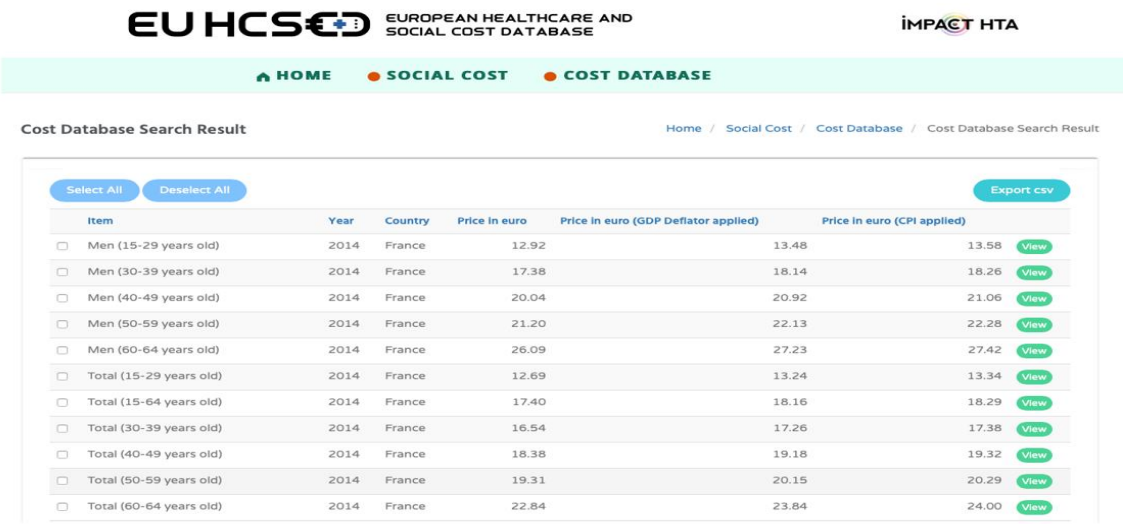
How can I obtain the information provided by the website?

You can seek in the database using three different ways:

1. Using the 'Search box' (Figure 1)

Figure 1

First, you have to include the term/s (Figure 1-1) and then press the 'Search' button (2) (Figure 1-2), for instance "Productivity losses".



Item	Year	Country	Price in euro	Price in euro (GDP Deflator applied)	Price in euro (CPI applied)	
Men (15-29 years old)	2014	France	12.92	13.48	13.58	View
Men (30-39 years old)	2014	France	17.38	18.14	18.26	View
Men (40-49 years old)	2014	France	20.04	20.92	21.06	View
Men (50-59 years old)	2014	France	21.20	22.13	22.28	View
Men (60-64 years old)	2014	France	26.09	27.23	27.42	View
Total (15-29 years old)	2014	France	12.69	13.24	13.34	View
Total (15-64 years old)	2014	France	17.40	18.16	18.29	View
Total (30-39 years old)	2014	France	16.54	17.26	17.38	View
Total (40-49 years old)	2014	France	18.38	19.18	19.32	View
Total (50-59 years old)	2014	France	19.31	20.15	20.29	View
Total (60-64 years old)	2014	France	22.84	23.84	24.00	View

Figure 2

The website will give your results[1] of all the items included in the category including a brief description of the sex/age, year, country and the price in euros using the last Gross Domestic Product deflator and Consumer Prices Index available to date (Figure 2). In this step, you can select all items or part of them and export the information to a CSV file. You can also take a look at the details of each item pressing the green 'view' button (Figure 3). Among these details it can be found: the subcategory, the item in local language, the 'local price' and currency jointly the prices in euros. It is also provided as detail how the website updated these figures to the last year available. You can also obtain as detail the year of the last CPI and GDP deflator applied to updated prices together the source where the data is obtained from (Figure 3).

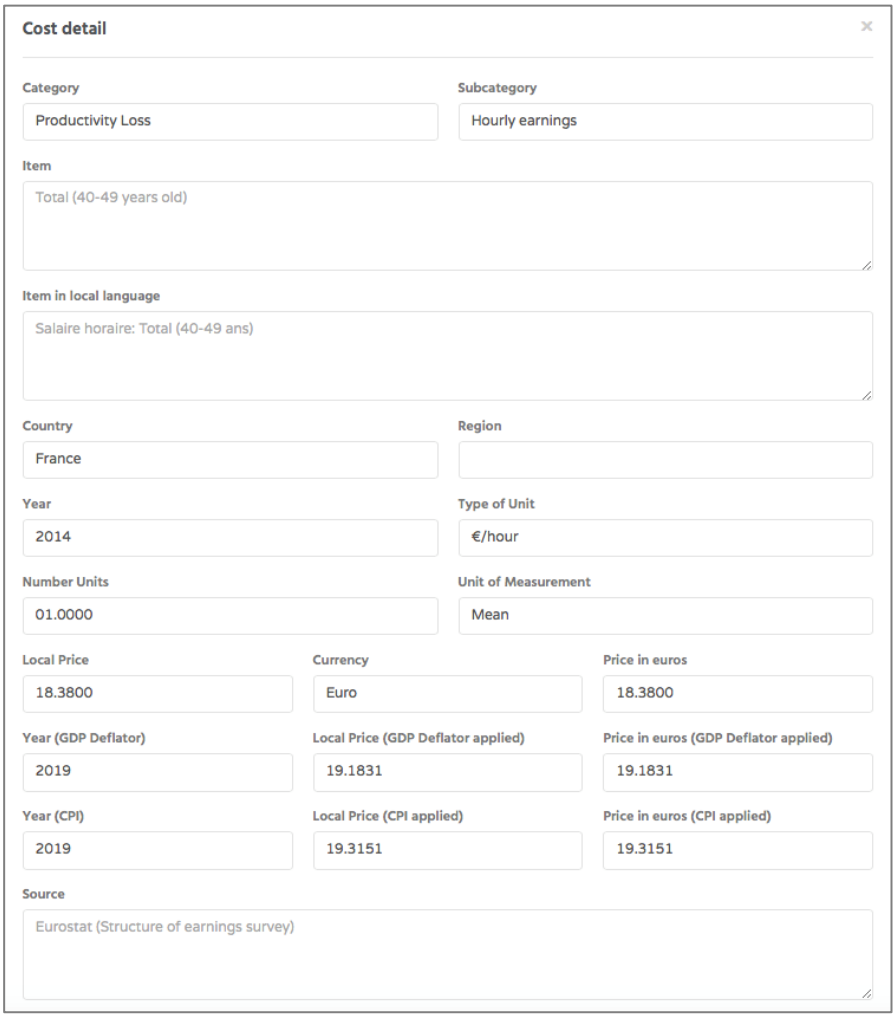


Figure 3

[1] In this case the following terms were included in the 'Search box': Productivity losses

2. Using the pre-defined searches presented in the main page when you access to the section "Go to the database". Now it is only provided two different pre-defined searches named 'Productivity loss 'Hourly earnings' (Figure 4 -[A]) and Informal care 'replacement cost method' (Figure 4-[B]).

Figure 4

[A] This pre-defined search returns the last hourly earnings available in official sources by country[2] and by sex/age when available (Figure 4 – [A]). It is the quickest way to obtain the hourly wage by county/sex/age form official sites. To obtain this data, first you have to push on 'Productivity loss 'Hourly earnings' (Figure 4 – [A]). Then, you have to select what country you want to seek (Figure 5).

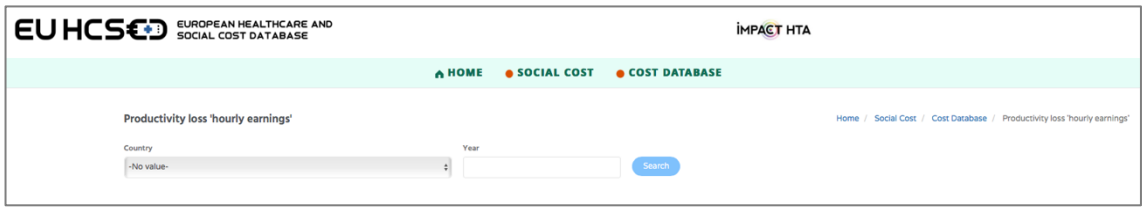


Figure 5

[2] In this example, Spain was the country chosen.

Once you have chosen one country, you have to push on the 'Search' button (Figure 5). Then, the website returns the data available about the hourly wage of the country selected by age and sex, if available (Figure 6). In this step, you can download all/selected item and/or ask for details using the green 'View' button at the right of each item. The details offered are the same that are provide in a search using the 'Search' button or the 'Advanced Search'.

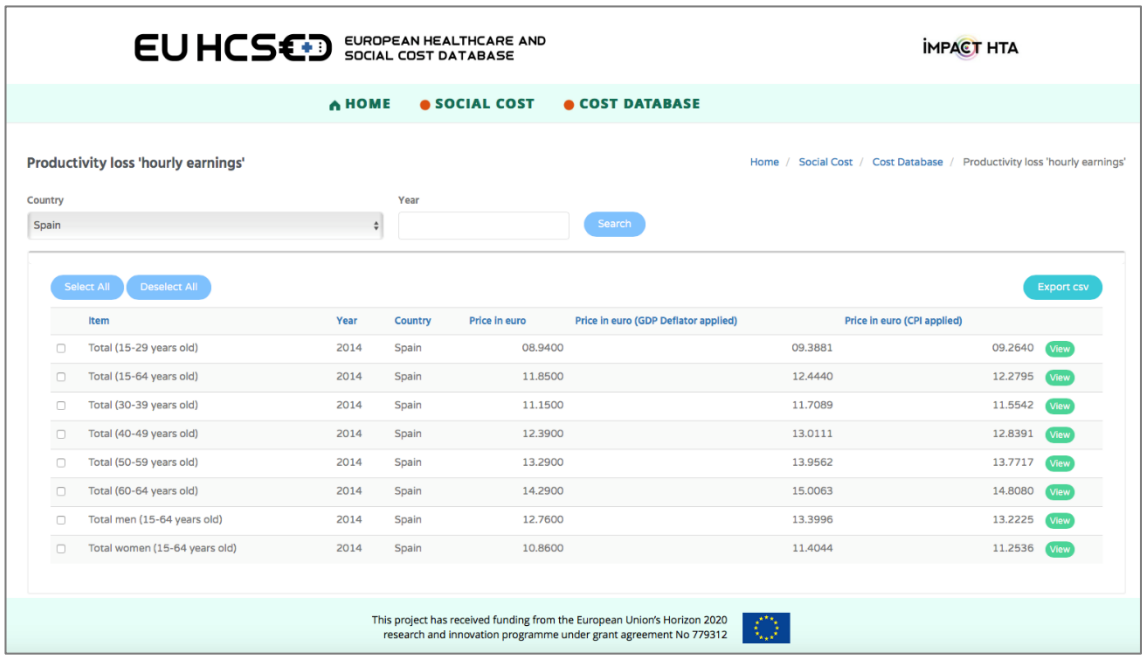


Figure 6

3. Using the 'Advance search' option just below the 'Search' button (Figure 7)

Figure 7

The 'Advance search' allows you to customize all the characteristic of the data included in the European HealthCare and Social Cost Database as it is described with detail in the Users's Guide available at the 'Healthcare cost' section. Briefly, by clicking on the 'Advance search' button you can ask the website to seek by local language, type of unit or for a precise year/country (Figure 8).

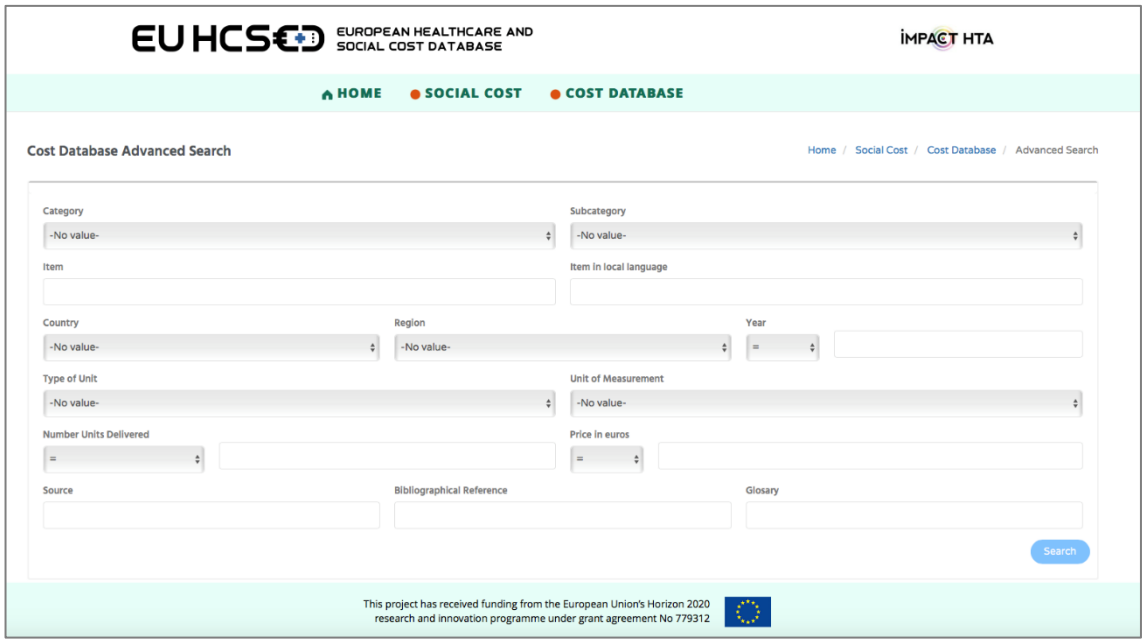


Figure 8

Supplementary Material: Informal care unit costs bibliographical reference

The following documentation is attached in the section of the website 'Supplementary Material' if the user click on 'Informal care unit costs bibliographical reference'

Selection of studies and unit cost extraction

In order to get data for the nine countries (France, Germany, Italy, Poland, Portugal, Slovenia, Spain, Sweden, United Kingdom) which are going to be part of the online database, we have used the information from the case studies performed on the economic evaluations on different diseases (Alzheimer´s disease[3], rare diseases, depression[4], diabetes, and multiple sclerosis), as well as the results on cost-of-illness studies from a search launched in PubMed (Medline), complementing the one performed by Oliva-Moreno et al (2017)[5].

Unit costs from case studies

In those case studies, two types of societal costs had to be considered in the economic evaluations so as to be selected as included studies: productivity losses and informal care costs. Regarding the information on unit costs for the latter type of social costs, the data extraction procedure was as follows:

1. Search strategy

We used two databases to identify potential references for the review: (i)Medline (PubMed) and (ii)the Cost-Effectiveness Analysis (CEA) Registry from the Tufts University. With respect to the former literature database, the following search strategy was launched, including both formal terms (MeSH terms) and natural language: "Costs"; "Cost Analysis"; "cost-effectiveness"; "cost-utility"; "cost-benefit"; "economic evaluation"; "economic analysis"; "QALY"; "quality-adjusted life years".

2. Inclusion criteria

Once the records had been identified and in order to extract the data on informal care unit costs, we selected the studies that met the following criteria: i) being an original economic evaluation study published in a scientific peer-reviewed journal; ii) being written in English; iii) including informal care costs; iv) being an economic evaluation performed of any intervention related to any of the next diseases: Alzheimer´s disease, rare diseases, depression, multiple sclerosis or diabetes.

Unit costs from cost-of-illness studies

[3] Peña-Longobardo, L.M., Rodríguez-Sánchez, B., Oliva-Moreno, J. et al. How relevant are social costs in economic evaluations? The case of Alzheimer's disease. Eur J Health Econ 20, 1207–1236 (2019). https://doi.org/10.1007/s10198-019-01087-6

[4] Duevel, J.A., Hasemann, L., Peña-Longobardo, L.M. et al. Considering the societal perspective in economic evaluations: a systematic review in the case of depression. Health Econ Rev 10, 32 (2020). https://doi.org/10.1186/s13561-020-00288-7

[5] Oliva-Moreno, J., Trapero-Bertran, M., Peña-Longobardo, L. M., & del Pozo-Rubio, R. (2017). The valuation of informal care in cost-of-illness studies: a systematic review. Pharmacoeconomics, 35(3), 331-345.

Following the search strategy by Oliva-Moreno et al. (2017)[5], a search was launched in PubMed using the following code:

((((((cost[Title/Abstract]) OR (costs[Title/Abstract]) OR (economic*[Title/Abstract]) OR (value*[Title/Abstract]) OR (impact[Title/Abstract]) OR (burden[Title/Abstract]) OR (willingness[Title/Abstract]) OR (resource*[Title/Abstract]) OR (use*[Title/Abstract]) OR (utilisation[Title/Abstract])) AND (informal care[Title/Abstract]) AND ((cancer[Title/Abstract]) OR (tumour[Title/Abstract]) OR (tumor[Title/Abstract]) OR (stroke[Title/Abstract]) OR (cerebrovascular[Title/Abstract]) OR (multiple sclerosis[Title/Abstract]) OR (dementia[Title/Abstract]) OR (Alzheimer[Title/Abstract]) OR (arthritis[Title/Abstract]) OR (osteoarthritis[Title/Abstract]) OR (schizophrenia[Title/Abstract]) OR (bipolar[Title/Abstract]) OR (depression[Title/Abstract]) OR (mental[Title/Abstract])))) Filters: Publication date from 2015/11/01 to 2019/10/31; Humans

167 records were identified, from which 45 were finally included as they met our inclusion criteria (being a cost-of-illness study published in a scientific journal in which informal care costs were included, being written in English and within one of the nine countries previously listed). These 45 finally selected articles were added to the 91 studies selected from the original systematic review performed by Oliva-Moreno et al. (2017)[5].

Data extraction

Once the inclusion of informal care costs has been confirmed, only the articles that provided with a unit cost per hour or with any other measure that could be converted into hourly terms were used to collect information on informal care unit costs. Then, the following information was extracted: first author´s family name, year of publication, disease, country, method to estimate informal care costs, sample size of the study (if available), number of hours of care provided (if available), unit of measurement (currency/hour), year of value, unit cost, comments on the unit cost applied, source, and full reference of the corresponding study.

Those unit costs were then updated to 2019 euros using the Gross Domestic Product (GDP) deflator and the Price Consumer Index for each country.

In addition, those articles that did include informal care costs but the authors did not give any information on the unit cost applied to the amount of informal care were listed in a separate Excel sheet in which the following information was collected as well: first author´s family name, year of publication, disease, country, method to estimate informal care costs (if available), sample size of the study (if available), number of hours of care provided (if available), comments on the unit cost applied (if available), source, and full reference of the corresponding study.

List of bibliographical references used for informal care unit costs by country

France

Opportunity cost method

Rapp, T., Andrieu, S., Chartier, F., Deberdt, W., Reed, C., Belger, M., & Vellas, B. (2018). Resource use and cost of alzheimer's disease in France: 18-month results from the GERAS Observational Study. Value in Health, 21(3), 295-303.

Bayen, E., Laigle-Donadey, F., Prouté, M., Hoang-Xuan, K., Joël, M. E., & Delattre, J. Y. (2017). The multidimensional burden of informal caregivers in primary malignant brain tumor. Supportive Care in Cancer, 25(1), 245-253.

Hornberger, J., Bae, J., Watson, I., Johnston, J., & Happich, M. (2017). Clinical and cost implications of amyloid beta detection with amyloid beta positron emission tomography imaging in early Alzheimer's disease–the case of florbetapir. Current medical research and opinion, 33(4), 675-685.

Wübker, A., Zwakhalen, S. M., Challis, D., Suhonen, R., Karlsson, S., Zabalegui, A., ... & Sauerland, D. (2015). Costs of care for people with dementia just before and after nursing home placement: primary data from eight European countries. The European Journal of Health Economics, 16(7), 689-707.

Gervès, C., Chauvin, P., & Bellanger, M. M. (2014) Evaluation of full costs of care for patients with Alzheimer's disease in France: the predominant role of informal care. Health Policy, 116(1), 114-122.

Wimo, A., Reed, C. C., Dodel, R., Belger, M., Jones, R. W., Happich, M., ... & Haro, J. M. (2013) The GERAS study: a prospective observational study of costs and resource use in community dwellers with Alzheimer's disease in three European countries–study design and baseline findings. Journal of Alzheimer's Disease, 36(2), 385-399.

Biasutti, M., Dufour, N., Ferroud, C., Dab, W., & Temime, L. (2012). Cost-effectiveness of magnetic resonance imaging with a new contrast agent for the early diagnosis of Alzheimer's disease. PloS one, 7(4).

Gustavsson, A., Jonsson, L., Rapp, T., Reynish, E., Ousset, P. J., Andrieu, S., ... & Wimo, A. (2010) Differences in resource use and costs of dementia care between European countries: baseline data from the ICTUS study. The journal of nutrition, health & aging, 14(8), 648-654.

Leal, J., Luengo-Fernández, R., Gray, A., Petersen, S., & Rayner, M. (2006) Economic burden of cardiovascular diseases in the enlarged European Union. European heart journal, 27(13), 1610-1619.

Replacement cost method

Bayen, E., Laigle-Donadey, F., Prouté, M., Hoang-Xuan, K., Joël, M. E., & Delattre, J. Y. (2017). The multidimensional burden of informal caregivers in primary malignant brain tumor. Supportive Care in Cancer, 25(1), 245-253.

Wübker, A., Zwakhalen, S. M., Challis, D., Suhonen, R., Karlsson, S., Zabalegui, A., ... & Sauerland, D. (2015). Costs of care for people with dementia just before and after nursing

home placement: primary data from eight European countries. The European Journal of Health Economics, 16(7), 689-707.

Gervès, C., Chauvin, P., & Bellanger, M. M. (2014) Evaluation of full costs of care for patients with Alzheimer's disease in France: the predominant role of informal care. Health Policy, 116(1), 114-122.

Wimo, A., Reed, C. C., Dodel, R., Belger, M., Jones, R. W., Happich, M., ... & Haro, J. M. (2013) The GERAS study: a prospective observational study of costs and resource use in community dwellers with Alzheimer's disease in three European countries–study design and baseline findings. Journal of Alzheimer's Disease, 36(2), 385-399.

Fagnani, F., Lafuma, A., Pechevis, M., Rigaud, A. S., Traykov, L., Seux, M. L., & Forette, F. (2004). Donepezil for the treatment of mild to moderate Alzheimer's disease in France: the economic implications. Dementia and geriatric cognitive disorders, 17(1-2), 5-13.

Chevreul, K., Prigent, A., Bourmaud, A., Leboyer, M., & Durand-Zaleski, I. (2013). The cost of mental disorders in France. European Neuropsychopharmacology, 23(8), 879-886.

Contingent valuation approach

Bayen, E., Laigle-Donadey, F., Prouté, M., Hoang-Xuan, K., Joël, M. E., & Delattre, J. Y. (2017). The multidimensional burden of informal caregivers in primary malignant brain tumor. Supportive Care in Cancer, 25(1), 245-253.

Caplan, B., Bogner, J., Brenner, L., Arciniegas, D., Bayen, E., Jourdan, C., ... & Weiss, J. J. (2016) Objective and subjective burden of informal caregivers 4 years after a severe traumatic brain injury: results from the PariS-TBI study. Journal of Head Trauma Rehabilitation, 31(5), E59-E67.

Wübker, A., Zwakhalen, S. M., Challis, D., Suhonen, R., Karlsson, S., Zabalegui, A., ... & Sauerland, D. (2015). Costs of care for people with dementia just before and after nursing home placement: primary data from eight European countries. The European Journal of Health Economics, 16(7), 689-707.

Gervès, C., Chauvin, P., & Bellanger, M. M. (2014) Evaluation of full costs of care for patients with Alzheimer's disease in France: the predominant role of informal care. Health Policy, 116(1), 114-122.

Germany

Opportunity cost method

Buntrock, C., Berking, M., Smit, F., Lehr, D., Nobis, S., Riper, H., ... & Ebert, D. (2017). Preventing depression in adults with subthreshold depression: health-economic evaluation alongside a pragmatic randomized controlled trial of a web-based intervention. Journal of medical Internet research, 19(1), e5.

Michalowsky, B., Thyrian, J. R., Eichler, T., Hertel, J., Wucherer, D., Flessa, S., & Hoffmann, W. (2016). Economic analysis of formal care, informal care, and productivity losses in primary care patients who screened positive for dementia in Germany. Journal of Alzheimer's Disease, 50(1), 47-59.

Wübker, A., Zwakhalen, S. M., Challis, D., Suhonen, R., Karlsson, S., Zabalegui, A., ... & Sauerland, D. (2015). Costs of care for people with dementia just before and after nursing home placement: primary data from eight European countries. The European Journal of Health Economics, 16(7), 689-707.

Wimo, A., Reed, C. C., Dodel, R., Belger, M., Jones, R. W., Happich, M., ... & Haro, J. M. (2013) The GERAS study: a prospective observational study of costs and resource use in community dwellers with Alzheimer's disease in three European countries–study design and baseline findings. Journal of Alzheimer's Disease, 36(2), 385-399.

Hartz, S., Getsios, D., Tao, S., Blume, S., & Maclaine, G. (2012). Evaluating the cost effectiveness of donepezil in the treatment of Alzheimer's disease in Germany using discrete event simulation. BMC neurology, 12(1), 2.

Leicht, H., Heinrich, S., Heider, D., Bachmann, C., Bickel, H., van den Bussche, H., ... & Pentzek, M. (2011) Net costs of dementia by disease stage. Acta Psychiatrica Scandinavica, 124(5), 384-395.

Guo, S., Hernandez, L., Wasiak, R., & Gaudig, M. (2010). Modelling the clinical and economic implications of galantamine in the treatment of mild-to-moderate Alzheimer's disease in Germany. Journal of medical economics, 13(4), 641-654.

Gustavsson, A., Jonsson, L., Rapp, T., Reynish, E., Ousset, P. J., Andrieu, S., ... & Wimo, A. (2010) Differences in resource use and costs of dementia care between European countries: baseline data from the ICTUS study. The journal of nutrition, health & aging, 14(8), 648-654.

Koenig, H. H., Born, A., Heider, D., Matschinger, H., Heinrich, S., Riedel-Heller, S. G., ... & Roick, C. (2009). Cost-effectiveness of a primary care model for anxiety disorders. The British Journal of Psychiatry, 195(4), 308-317.

Teipel, S. J., Ewers, M., Reisig, V., Schweikert, B., Hampel, H., & Happich, M. (2007). Long-term cost-effectiveness of donepezil for the treatment of Alzheimer’s disease. European Archives of Psychiatry and Clinical Neuroscience, 257(6), 330-336.

Kobelt, G., Berg, J., Lindgren, P., Elias, W. G., Flachenecker, P., Freidel, M., ... & Straube, E. (2006) Costs and quality of life of multiple sclerosis in Germany. The European journal of health economics, 7(2), 34-44.

Leal, J., Luengo-Fernández, R., Gray, A., Petersen, S., & Rayner, M. (2006) Economic burden of cardiovascular diseases in the enlarged European Union. European heart journal, 27(13), 1610-1619.

Icks, A., Haastert, B., Gandjour, A., John, J., Löwel, H., Holle, R., ... & Rathmann, W. (2004) Cost-effectiveness analysis of different screening procedures for type 2 diabetes: the KORA Survey 2000. Diabetes Care, 27(9), 2120-2128.

Replacement cost method

Michalowsky, B., Thyrian, J. R., Eichler, T., Hertel, J., Wucherer, D., Flessa, S., & Hoffmann, W. (2016). Economic analysis of formal care, informal care, and productivity losses in primary care patients who screened positive for dementia in Germany. Journal of Alzheimer's Disease, 50(1), 47-59.

Wübker, A., Zwakhalen, S. M., Challis, D., Suhonen, R., Karlsson, S., Zabalegui, A., ... & Sauerland, D. (2015). Costs of care for people with dementia just before and after nursing home placement: primary data from eight European countries. The European Journal of Health Economics, 16(7), 689-707.

König, H. H., Leicht, H., Brettschneider, C., Bachmann, C., Bickel, H., Fuchs, A., ... & Pentzek, M. (2014). The costs of dementia from the societal perspective: is care provided in the community really cheaper than nursing home care? Journal of the American Medical Directors Association, 15(2), 117-126.

Lueke, S., Hoffmann, W., & Fleβa, S. (2014) Transitions between care settings in dementia: Are they relevant in economic terms? Value in Health, 17(6), 679-685.

Leicht, H., König, H. H., Stuhldreher, N., Bachmann, C., Bickel, H., Fuchs, A., ... & Mösch, E. (2013) Predictors of costs in dementia in a longitudinal perspective. PloS One, 8(7).

Wimo, A., Reed, C. C., Dodel, R., Belger, M., Jones, R. W., Happich, M., ... & Haro, J. M. (2013) The GERAS study: a prospective observational study of costs and resource use in community dwellers with Alzheimer's disease in three European countries–study design and baseline findings. Journal of Alzheimer's Disease, 36(2), 385-399.

Leicht, H., Heinrich, S., Heider, D., Bachmann, C., Bickel, H., van den Bussche, H., ... & Pentzek, M. (2011) Net costs of dementia by disease stage. Acta Psychiatrica Scandinavica, 124(5), 384-395.

Contingent valuation approach

Wübker, A., Zwakhalen, S. M., Challis, D., Suhonen, R., Karlsson, S., Zabalegui, A., ... & Sauerland, D. (2015). Costs of care for people with dementia just before and after nursing home placement: primary data from eight European countries. The European Journal of Health Economics, 16(7), 689-707.

Italy

Opportunity cost method

Kobelt, G., Eriksson, J., Phillips, G., & Berg, J. (2017) The burden of multiple sclerosis 2015: Methods of data collection, assessment and analysis of costs, quality of life and symptoms. Multiple Sclerosis Journal, 23(2_suppl), 4-16.

Luengo-Fernandez, R., Leal, J., Gray, A., & Sullivan, R. (2013) Economic burden of cancer across the European Union: a population-based cost analysis. The lancet oncology, 14(12), 1165-1174.

Gustavsson, A., Jonsson, L., Rapp, T., Reynish, E., Ousset, P. J., Andrieu, S., ... & Wimo, A. (2010). Differences in resource use and costs of dementia care between European countries: baseline data from the ICTUS study. The journal of nutrition, health & aging, 14(8), 648-654.

Kobelt, G., Berg, J., Lindgren, P., Battaglia, M., Lucioni, C., & Uccelli, A. (2006). Costs and quality of life of multiple sclerosis in Italy. The European Journal of Health Economics, 7(2), 45-54.

Leal, J., Luengo-Fernández, R., Gray, A., Petersen, S., & Rayner, M. (2006) Economic burden of cardiovascular diseases in the enlarged European Union. European heart journal, 27(13), 1610-1619.

Replacement cost method

Lazzaro, C., Bianchi, C., Peracino, L., Zacchetti, P., & Uccelli, A. (2009). Economic evaluation of treating clinically isolated syndrome and subsequent multiple sclerosis with interferon β-1b. Neurological sciences, 30(1), 21-31.

Chiatti, C., Furneri, G., Rimland, J. M., Demma, F., Bonfranceschi, F., Cassetta, L., ... & UP-TECH research group. (2015). The economic impact of moderate stage Alzheimer's disease in Italy: evidence from the UP-TECH randomized trial. International Psychogeriatrics, 27(9), 1563-1572.

Fattore, G., Torbica, A., Susi, A., Giovanni, A., Benelli, G., Gozzo, M., & Toso, V. (2012). The social and economic burden of stroke survivors in Italy: a prospective, incidence-based, multi-centre cost of illness study. BMC neurology, 12(1), 137.

Poland

Opportunity cost method

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Portugal

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Spain

Opportunity cost method

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Sweden

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United Kingdom

Opportunity cost method

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Contingent valuation approach

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Supplementary Material: Glossary

Lastly, if the user click on Glossary a brief definition of most relevant concepts included in the database is available to users.

General concepts

Societal perspective *– Type of perspective that find to identify, measure and assess the effects of a disease or injury or of an intervention on all the agents involved or affected. Translated to the realm of costs, the social perspective should reflect a full range of social opportunity costs associated with a disease, injury or interventions.*

Societal Costs – *Societal costs refer to those costs supported mainly by patients (privately) but also resulting in an effect on the whole society, such as the loss of productivity due to an illness or personal assistance needed due to a disability.*

Indirect cost *– Costs of those resources for which no payment is made, but for which there is an opportunity cost or foregone benefit. A limited interpretation of indirect cost is one that identifies them only with losses in labour productivity. Another broader interpretation identifies as indirect cost any change in the habitual use of time that an illness or injury entails, both for the patients and the caregivers.*

GDP deflator – *The Gross Domestic Product deflator measures the changes in prices for all of the goods and services produced in an economy in a certain period of time, habitually a natural year. These changes in prices are obtained using official annual national accounts.*

Time costs-patients

Methods to estimate labour productivity

Human capital approach *– A method used to estimate labour productivity losses. The value of a day, month or year is approximated by the value of an average individual's present or future labour earnings. This concept can be applied to value non-labour productivity losses (domestic productivity) and leisure time losses.*

Friction cost method *– Alternative method to the human capital approach in estimating productivity costs. This approach limits productivity losses to a*

friction period, with friction costs broadly comprising lost production during the friction period and the costs of hiring and training new individuals.

Friction costs elements

Friction period *– The time until another worker from the pool of unemployed has fully replaced the individual who is absent due to an illness*

Elasticity correction factor – *a correction factor that represents the fact that the decrease in labour productivity per year is not proportional to the reduction in annual labour time.*

General concepts

Annual earnings *– In addition to gross earnings as in any reference month (remuneration in cash paid before any tax deductions and social security contributions payable by wage earners and retained by the employer), annual gross earnings also cover 'non-standard payments', i.e. payments not occurring in each pay period, such as: 13th or 14th month payments, holiday bonuses, quarterly or annual company bonuses and annual payments in kind.*

Hourly earnings *– Hourly gross earnings are defined as gross earnings in the reference month divided by the number of hours paid during the same period.*

Number of monthly paid hours *– Number of hours paid includes all normal and overtime hours worked and remunerated by the employer during the reference month. Hours not worked but nevertheless paid are counted as 'paid hours' (e.g. for annual leave, public holidays, paid sick leave, paid vocational training, paid special leave, etc.). Number of hours in part-time work were converted into full-time work equivalents.*

Employment rate – *percentage of people of working age in the population who are employed.*

Premature death – *Death that occurs before the average age of death in aa certain population or before a determined age (65, 70, 75, 80 years).*

Absenteeism *– Any failure to report for or remain at work as scheduled. In our context, absenteeism is related to an illness or injury.*

Presenteeism *– Situation in which a person, even being physically at her/his job, has a reduced level of productivity that makes it difficult or impossible to perform her/his work.*

Multiplier effects *– the additional costs that result from the absence of a worker through the negative externalities that it causes in his/her work team.*

Non-paid time

Informal care *– Term that is usually employed to identify a type of non-professional care, usually provided by family or friends, to people with limitations in their autonomy (dependence). Its definition and scope may vary in the literature depending on the country and the moment of time considered.*

Revealed preference methods to economic assess non-paid time

Revealed preference method *– Valuation method where a group of individuals reveals their valuation for a good or service through their decisions and behaviour, usually through interactions in a real market. This method is used to assess informal care time, its two most common applications being the opportunity cost method and the proxy good method.*

Opportunity cost method *– A type of revealed preference method used for the assessment of informal care. The opportunity costs method finds to identify the informal caregiver's benefits forgone due to spending time on providing informal care.*

Proxy good method *– (also called replacement cost method) – A type of revealed preference method used for the assessment of informal care. Informal care time is valued at the labour market prices of a close market substitute.*

Stated preference methods to economic assess non-paid time

Stated preference method *– Valuation method where a group of individuals is surveyed to show their preferences, usually on nonmarket commodities.*

This method is used to assess informal care time. The two most common applications are the contingent valuation (willingness to pay and willingness to accept) and conjoint analysis.

***Contingent Valuation** – Type of Stated preference method consists in survey-based economic techniques for the valuation of non-market good or services (see Willingness to pay and Willingness to Accept).*

***Willingness to accept** – The minimum amount of money that a person is theoretically willing to receive to sell or to give up a good or service, or to put up with something negative.*

***Willingness to pay** – The maximum price at or below which a person will theoretically pay for one unit of a good or service (see contingent valuation, see Stated preference method).*

***Conjoint analysis** – Survey-based statistical technique used to determine how people value different attributes that make up a good or service.*

Long Term Care

***Long-term care** – range of services and assistance required by people with a reduced degree of functional capacity, physical or cognitive, and who depend for an extended time period on help with basic activities of daily living or with need of some permanent nursing care.*

***Nursing home** – institutions sheltering people in need for care or who cannot be fully independent and who need assistance in activities of daily living, in an environment where they can receive nursing care, for short or long stays.*

***Day care centre –** institution which aims to provide supervision and care to whom cannot be fully independent, mainly during daytime*

***Homecare** – professional help received at home by people who cannot be fully independent with different matters, such as personal care or domestic tasks.*

***Respite care** – temporary care services provided as a relief to caregivers from their caregiving tasks for a person in need for care and not fully independent.*

Professional (formal) care – *paid care services provided to a person with limitations in his/her autonomy for another person specially trained and professionally dedicated to providing this service.*

Telecare *– include equipment and services aimed to provide support to patients remotely that help to get them safe and independence at home*