**Supplementary Document**

**Where are we at with model-based economic evaluations of interventions for dementia? A systematic review and quality assessment**

**Appendix 1: Search and evaluation methods**

**Table A1.1. Search keywords (updated February 2018)**

|  |  |  |
| --- | --- | --- |
| **Database** | **Search queries** | **Items found** |
| PubMed | (("cost effectiveness" OR "economic" OR Markov OR "decision analytic")) AND "Dementia"[Mesh] | 1160 |
| EconLit | ("economic evaluation" OR Markov OR "Decision analytic" OR "Cost effectiveness") AND (dementia OR “cognitive impairment” OR “Alzheimer’s disease”) | 21 |
| EMBASE | 'dementia':ab,ti AND ('economic evaluation':ab,ti OR 'cost effectiveness analysis':ab,ti OR 'markov':ab,ti OR 'decision analytic model':ab,ti) | 222 |
| All other databases and sources, including reference lists of identified papers | (“dementia” OR “cognitive impairment” OR “Alzheimer”) AND ("economic evaluation" OR Markov OR "Decision analytic" OR "Cost effectiveness") | 34 (total) |

**Table A1.2: Search scope and eligibility criteria for the literature review**

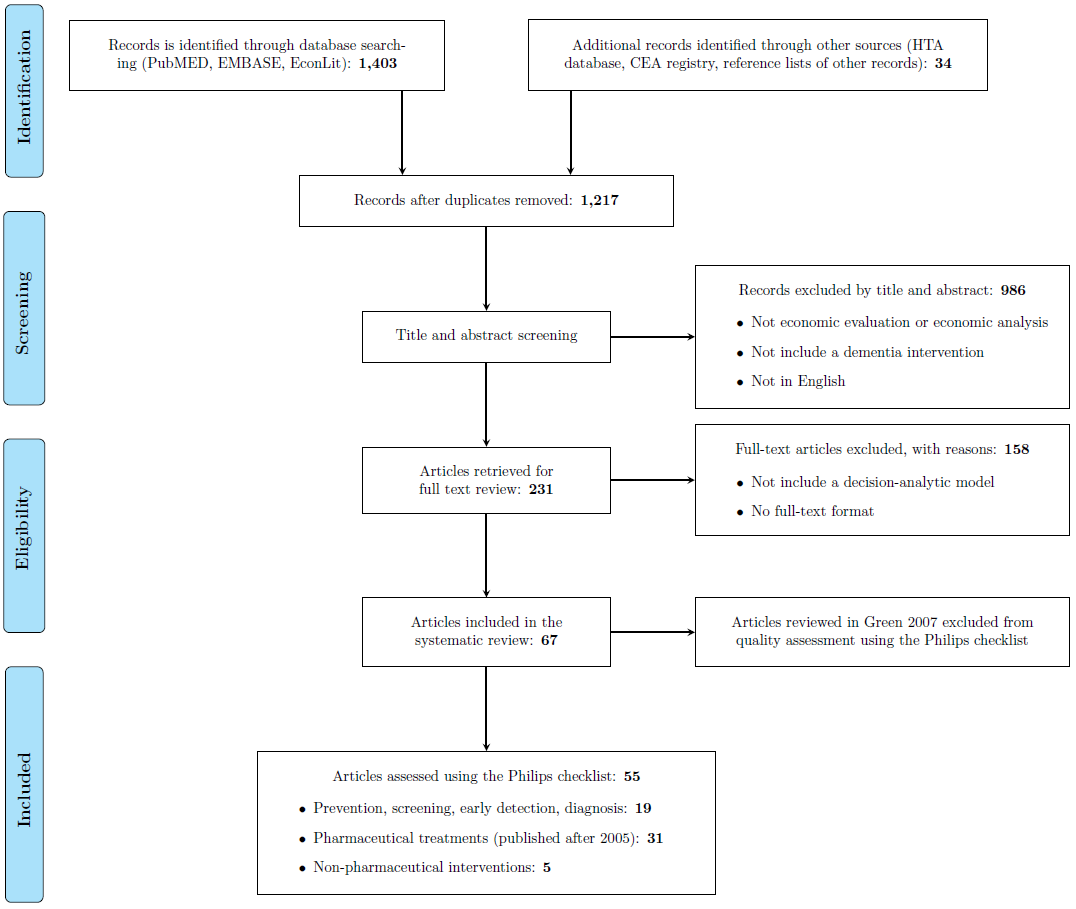
|  | **Dementia diagnostis** | **Treatment for dementia** | **Interventions for carers** |
| --- | --- | --- | --- |
| Disease scope | Dementia, Alzheimer’s disease, vascular dementia, dementia with Lewy bodies, cost-effectiveness, economic evaluation, diagnostic, screen, early assessment, detection | Dementia, Alzheimer’s disease, vascular dementia, dementia with Lewy bodies, cost-effectiveness, economic evaluation, treatment, | Dementia, Alzheimer’s disease, vascular dementia, dementia with Lewy bodies, carer, carers, cost-effectiveness, economic evaluation, carer, carers |
| Population | Human population diagnosed with or suspected of having dementia, which includes previously undiagnosed individuals. | Human population diagnosed with dementia of any type, and of any disease severity | Individuals identified as carers for people with dementia, which includes both paid and unpaid carers. |
| Intervention | Diagnostic process or technology used for a timely or symptomatic pre-dementia diagnosis of dementia in a clinical setting | Pharmacological or non-pharmacological intervention that aims at reversing or delaying dementia progression | Interventions aimed at supporting, improving productivity, health outcomes and quality of life of carers of people with dementia |
| Inclusion criteria | * In English and full text format * Contains or describes decision-analytic model, Markov model, cohort simulation model, discrete event simulation model * Includes data on costs and/or health related outcome measures (for people with dementia and/or carers) | | | |
| Exclusion criteria | * Trial-based or regression-based economic evaluations (i.e. not decision analytic models) or cost of illness study * Reviews or systematic reviews and/or meta-analyses *(however, these articles were used to identify additional studies that the database search did not identify)* | | | |

**Table A1.3. Items on the Philips checklist**

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension of quality** | | | **Questions for critical appraisal** |
| S1 | Statement of decision problem / objective | S11 | Is there a clear statement of decision problem? |
| S12 | Is the objective of the evaluation and model specified and consistent with the decision problem? |
| S13 | Is the primary decision maker specified? |
| S2 | Statement of scope and perspective | S21 | Is the perspective of the model stated clearly? |
| S22 | Are the model inputs consistent with the stated perspective? |
| S23 | Has the scope of the model been stated and justified? |
| S24 | Are the outcomes of the model consistent with the perspective, scope and overall objective of the model? |
| S3 | Rationale for structure | S31 | Has the evidence regarding the model structure been described? |
| S32 | Is the structure of the model consistent with a coherence theory of the health condition under evaluation? |
| S33 | Have any competing theories regarding model structure been considered? |
| S34 | Are the sources of data used to develop the structure of the model specified? |
| S35 | Are the causal relationships described by the model structure justified appropriately? |
| S4 | Structural assumptions | S41 | Are the structural assumptions transparent and justified? |
| S42 | Are the structural assumptions reasonable given the overall objective, perspective and scope of the model? |
| S5 | Strategies / Comparators | S51 | Is there a clear definition of the option under evaluation? |
| S52 | Have all feasible and practical options been evaluated? |
| S53 | Is there any justification for exclusion of feasible options? |
| S6 | Model type | S61 | Is the chosen model type appropriate given the decision problem and specified causal relationships within the model? |
| S7 | Time horizon | S71 | Is the time horizon of the model sufficient to reflect all the important differences between options? |
| S72 | Is the time horizon of the model, and the duration of treatment and treatment effect described and justified? |
| S73 | Has a lifetime horizon been used? If not, has a shorter time horizon been justified? |
| S8 | Disease states / pathways | S81 | Do the disease states (state transition model) or the pathways (decision tree model) reflect the underlying biological process of the disease in question and the impact of interventions? |
| S9 | Cycle length | S91 | Is the cycle length defined and justified in terms of the natural history of disease? |
| D1 | Data identification | D11 | Are the data identification methods transparent and appropriate given the objectives of the model? |
| D12 | Where choices have been made between data sources, are these justified appropriately? |
| D13 | Has particular attention been paid to identifying data for the important parameters in the model? |
| D14 | Has the process of selecting key parameters been justified and systematic methods used to identify the most appropriate data? |
| D15 | Has the quality of the data been assessed appropriately? |
| D16 | Where expert opinion has been used, are the methods described and justified? |
| D2 | Pre-model data analysis | D21 | Are the pre-model data analysis method based on justifiable statistical and epidemiological techniques? |
| D2a | Pre-model: Baseline data | D2a1 | Is the choice of baseline data described and justified? |
| D2a2 | Are transition probabilities calculated appropriately? |
| D2a3 | Has a half cycle correction has been applied to both cost and outcome? |
| D2a4 | If not, has this omission been justified? |
| D2b | Pre-model: Treatment effects | D2b1 | If relative treatment effects have been derived from trial data, have they been synthesised using appropriate techniques? |
| D2b2 | Have the methods and assumptions used to extrapolate short-term results to final outcomes been documented and justified? Have alternative assumptions been explored through sensitivity analysis? |
| D2b3 | Have assumptions regarding the continuing effect of treatment once treatment is complete been documented and justified? Have alternative assumptions been explored through sensitivity analysis? |
| D2c | Pre-model: Quality of life weights (utility) | D2c1 | Are the utilities incorporated into the model appropriately? |
| D2c2 | Is the source for the utility weights referenced? |
| D2c3 | Are the methods of derivation for the utility weights justified? |
| D3 | Data incorporation | D31 | Have all data incorporated into the model been described and referenced in sufficient detail? |
| D32 | Has the use of mutually inconsistent data been justified (i.e. are assumptions and choices appropriate)? |
| D33 | Is the process of data incorporation transparent? |
| D34 | If data have been incorporated as distributions, has the choice of distribution for each parameter been described and justified? |
| D35 | If data have been incorporated as distribution, is it clear that second order uncertainty is reflected? |
| D4 | Assessment of uncertainty | D41 | Have the four principal types of uncertainty been addressed? |
| D42 | If not, has the omission of particular forms of uncertainty been justified? |
| D4a | Uncertainty: Methodological | D4a1 | Have methodological uncertainties been addressed by running alternative versions of the model with different methodological assumptions? |
| D4b | Uncertainty: Structural | D4b1 | Is there evidence that structural uncertainties have been addressed via sensitivity analysis? |
| D4c | Uncertainty: Heterogeneity | D4c1 | Has heterogeneity been dealt with by running the model separately for different sub-groups? |
| D4d | Uncertainty: Parameter | D4d1 | Are the methods of assessment of parameter uncertainty appropriate? |
| D4d2 | Has probabilistic sensitivity analysis been done, if not has this been justified? |
| D4d3 | If data are incorporated as point estimates, are the range used for sensitivity analysis stated clearly and justified? |
| C1 | Internal consistency | C11 | Is there evidence that the mathematical logic of the model has been tested thoroughly before use? |
| C2 | External consistency | C21 | Are the conclusions valid given the data presented? |
| C22 | Are any counter-intuitive results from the model explained and justified? |
| C23 | If the model has been calibrated against independent data, have any differences been explained and justified? |
| C24 | Have the results of the model been compared with those of previous models and any differences in results explained? |

**Appendix 2: Search and evaluation results**

**Figure A2.1: Flow diagram of included and excluded publications (PRISMA)**



**Figure A2.2: A brief history of decision-analytic models used to evaluate cost effectiveness of dementia interventions**

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**Table A2.1a: Basic characteristics of modelled cost effectiveness studies**

| **#** | **First author** | **Year** | **Country** | **Industry** | **Intervention type** | **Evaluation type** | **Perspective** | **Population** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Simon | 1985 | US | No | Diagnosis | CEA | HS | Dementia |
| 2 | Retchin | 1994 | US | No info | Diagnosis | CBA | Society | Elderly (50+ or 60+ etc.) |
| 3 | Henke | 1997 | US | Yes | Drug Treatment | Cost only | Payer | Mild-Moderate dementia |
| 4 | Jonsson | 1999 | Sweden | Yes | Drug Treatment | CEA | ? | AD |
| 5 | Neumann | 1999 | US | Yes | Drug Treatment | CUA | Society | AD |
| 6 | O'Brien | 1999 | Canada | No info | Drug treatment | CEA | Payer + Society | Mild-Moderate AD |
| 7 | McMahon | 2000 | US | Indirectly | Diagnosis | CUA | Society | AD |
| 8 | Getsios | 2001 | Canada | No info | Drug treatment | CUA | HS | Mild-Moderate AD |
| 9 | Caro | 2002 | Netherlands | Yes | Drug treatment | CUA | Payer | Mild-Moderate AD |
| 10 | Garfield | 2002 | Sweden | Yes | Drug treatment | CEA | Payer | AD |
| 11 | Ikeda | 2002 | Japan | No info | Drug treatment | CUA | Payer | Mild-Moderate AD |
| 12 | Silverman | 2002 | US | No | Diagnosis | CEA | Society | MCI or Early AD/dementia |
| 13 | Silverman | 2002 | US | No | Diagnosis | CEA | Payer | MCI or Early AD/dementia |
| 14 | Caro | 2003 | Canada | Yes | Drug treatment | CUA | HS + Society | AD |
| 15 | Kulasingam | 2003 | US | No | Diagnosis | Outcome only | Patient | MCI or Early AD/dementia |
| 16 | McMahon | 2003 | US | No info | Diagnosis | CUA | Society | Mild-Moderate dementia |
| 17 | Migliaccio-Walle | 2003 | US | Yes | Drug treatment | CEA | Payer | Mild-Moderate AD |
| 18 | Ward | 2003 | UK | Yes | Drug treatment | CUA | HS | Mild-Moderate AD |
| 19 | Caro | 2004 | Australia, Canada, Finland, New Zealand, Sweden, Netherlands, UK | Yes | Drug treatment | CUA | HS | Mild-Moderate AD |
| 20 | Francois | 2004 | Finland | Yes | Drug treatment | CEA | Society | Moderate-Severe AD |
| 21 | Jones | 2004 | UK | Yes | Drug treatment | CUA | HS | Moderate-Severe AD |
| 22 | Martikainen | 2004 | Finland | No | Care | CUA | Society | Mild AD |
| 23 | Green | 2005 | UK | No | Drug Treatment | CUA | HS | AD |
| 24 | Jonsson | 2005 | Sweden | Yes | Drug treatment | CUA | Payer | Mild-Moderate AD |
| 25 | Moulin-Romsee | 2005 | Belgium | No info | Diagnosis | CEA | HS | MCI or Early AD/dementia |
| 26 | Antonanzas | 2006 | Spain | No info | Drug treatment | CEA | Society | Moderate-Severe AD |
| 27 | Loveman | 2006 | UK | No | Drug treatment | CUA | Payer | AD |
| 28 | Gagnon | 2007 | Canada | Yes | Drug treatment | CUA | Society | Moderate-Severe AD |
| 29 | Teipel | 2007 | Germany | No | Drug treatment | CUA | Payer | Mild-Moderate AD |
| 30 | Weycker | 2007 | US | Yes | Drug treatment | CUA | Society | Moderate-Severe AD |
| 31 | Fuh | 2008 | Taiwan | Yes | Drug treatment | CUA | Society | Mild-Moderate AD |
| 32 | Kirbach | 2008 | US | No | Drug treatment | CUA | HS | AD |
| 33 | Gustavsson | 2009 | UK | Yes | Drug treatment | CUA | ? | AD & DLB |
| 34 | Lopez-Bastida | 2009 | Spain | No | Drug treatment | CUA | HS + Society | Mild-Moderate AD |
| 35 | Suh | 2009 | Korea | No | Drug treatment | CUA | Payer | AD |
| 36 | Wong | 2009 | Canada | No | Drug treatment | CEA | Society | Vascular Dementia |
| 37 | Getsios | 2010 | UK | Yes | Drug treatment | CUA | Payer + Society | Mild-Moderate AD |
| 38 | Guo | 2010 | Germany | Yes | Drug treatment | CEA | Payer | Mild-Moderate AD |
| 39 | Kasuya | 2010 | Japan | No | Drug treatment | CUA | Payer | MCI or Early AD/dementia |
| 40 | Rive | 2010 | UK | Yes | Drug treatment | CUA | Payer | Moderate-Severe AD |
| 41 | Budd | 2011 | US | Yes | NPI | Outcome only | ? | MCI or Early AD/dementia |
| 42 | Hoogveldt | 2011 | Netherlands | Yes | Drug treatment | CUA | Society | Moderate-Severe AD |
| 43 | Lachaine | 2011 | Canada | Yes | Drug treatment | CUA | HS + Society | AD |
| 44 | Zhang | 2011 | Sweden and Finland | No | Prevention | CUA | Society | Elderly (50+ or 60+ etc.) |
| 45 | Biasutti | 2012 | France | No | Diagnosis | CUA | Society | MCI or Early AD/dementia |
| 46 | Bond | 2012 | UK | No | Drug treatment | CUA | Society | AD |
| 47 | Djalalov | 2012 | Canada | Indirectly | Diagnosis | CUA | Society | MCI or Early AD/dementia |
| 48 | Getsios | 2012 | UK | Yes | Diagnosis | CUA | Payer + Society | MCI or Early AD/dementia |
| 49 | Hartz | 2012 | Germany | Yes | Drug treatment | CUA | Payer + Society | Moderate-Severe AD |
| 50 | Pfeil | 2012 | Switzerland | Yes | Drug treatment | CUA | HS + Society | AD |
| 51 | Rive | 2012 | Norway | Yes | Drug treatment | CUA | HS + Society | Moderate-Severe AD |
| 52 | Peters | 2013 | UK | No | Drug treatment | CUA | Payer | AD |
| 53 | Skoldunger | 2013 | Sweden | Indirectly | NPI | CUA | HS | Elderly (50+ or 60+ etc.) |
| 54 | Bermingham | 2014 | Canada | No | Diagnosis | CUA | Payer | Mild-Moderate dementia |
| 55 | Touchon | 2014 | France | Yes | Drug treatment | CUA | HS + Society | AD |
| 56 | Valcarcel-Nazco | 2014 | Spain | No | Diagnosis | CEA | HS | MCI or Early AD/dementia |
| 57 | Handels | 2015 | Netherlands | No info | Diagnosis | CUA | Society | MCI or Early AD/dementia |
| 58 | Hornberger | 2015 | Spain | No info | Diagnosis | CUA | HS + Society | MCI or Early AD/dementia |
| 59 | Hu | 2015 | China | Yes | Drug treatment | CEA | Society | Moderate-Severe AD |
| 60 | Mirsaeedi-Farahadi | 2015 | US | No info | NPI | CUA | Society | Mild AD |
| 61 | Thibault | 2015 | US | Yes | Drug treatment | CUA | Payer + Society | Moderate-Severe AD |
| 62 | Yu | 2015 | Korea | No | Diagnosis | CUA | Society | Elderly (50+ or 60+ etc.) |
| 63 | Yang | 2016 | Taiwan | No | Drug treatment | CUA | Society | Mild-Moderate AD |
| 64 | Hornberger | 2017 | France | Yes | Diagnosis | CUA | HS | MCI or Early AD/dementia |
| 65 | Lee | 2017 | US | No | Diagnosis | CUA | Society | MCI or Early AD/dementia |
| 66 | Dowd | 2018 | Ireland | No | Care | CUA | Payer + Society | Mild dementia |
| 67 | Zala | 2018 | UK | Yes | Drug treatment | CUA | Payer | AD |

**Table A2.1b: Basic characteristics of modelled cost effectiveness studies (continued)**

| **#** | **First author** | **Year** | **Options under evaluation** | **Model types** | **Duration** | **Cycle length** | **Health states (if applicable)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Simon | 1985 | CT, MRT | Decision tree | ? | NA | NA |
| 2 | Retchin | 1994 | Screening (none vs. every 1, 2, 3, 4, 5 years) | Markov state transition | Lifetime | NA | 9 HS: combination of testing, dementia, accident and death |
| 3 | Henke | 1997 | Tacrine, No treatment | Decision tree | Lifetime | NA | 3 HS: No nursing home, nursing home, death |
| 4 | Jonsson | 1999 | Donepezil, No treatment | Markov state transition | 5 years | 6 months | 6 HS MMSE 0-9, 10-14, 15-20, 21-26, 27-30, death |
| 5 | Neumann | 1999 | Donepezil, No treatment | Markov state transition | 18 months | 6 weeks | 4 HS: Mild, Mod, Severe AD, Death |
| 6 | O'Brien | 1999 | Donepezil, No treatment | Decision tree + Markov | 5 years | 24 weeks | 6 HS: MMSE 0-10, 10-14, 15-20, 21-26, 27-30, dead |
| 7 | McMahon | 2000 | SPECT, standard diagnosis | Decision tree + Markov | 18 months | 6 weeks | 4 HS: None, mild, mod, Severe, dead |
| 8 | Getsios | 2001 | Galantamine, No treatment | Markov state transition | 10 years | ? | 3 HS: no-FTC, FTC and death |
| 9 | Caro | 2002 | Galantamine, No treatment | Markov state transition | 10 years | ? | 3 HS: Pre-FTC, FTC, Dead |
| 10 | Garfield | 2002 | Galantamine, No treatment | Markov state transition | 10 years | ? | 3 HS: Pre-FTC, FTC, Dead |
| 11 | Ikeda | 2002 | Donepezil, No treatment | Markov state transition | 2 years | ? | 4 HS: Mild. Moderate, Severe, Death |
| 12 | Silverman | 2002 | PET, standard diagnosis | Decision tree | NA | NA | NA |
| 13 | Silverman | 2002 | PET, standard diagnosis | Decision tree | NA | NA | NA |
| 14 | Caro | 2003 | AChEIs, No treatment | Markov state transition | 10 years | ? | 3 HS: Pre-FTC, FTC community, FTC institution, Dead |
| 15 | Kulasingam | 2003 | PET, standard diagnosis | Markov state transition | Life time | 1 year | 6 HS: Asymptomatic, MCI, Mild, Moderate, Severe, Dead |
| 16 | McMahon | 2003 | SPECT, MRI, PET, standard diagnosis | Decision tree + Markov | 18 months | 6 weeks | 4 HS: None, mild, moderate, Severe, dead |
| 17 | Migliaccio-Walle | 2003 | Galantamine, No treatment | Markov state transition | 10 years | ? | 3 HS: No FTC, FTC, Death |
| 18 | Ward | 2003 | Galantamine, No treatment | Markov state transition | 10 years | ? | 3 HS: No FTC, FTC, Death |
| 19 | Caro | 2004 | Galantamine, No treatment | Markov state transition | 10 years | ? | 3 HS: Pre-FTC, FTC community, FTC institution, Dead |
| 20 | Francois | 2004 | Memantine, No treatment | Markov state transition | 5 years | 6 months | 13 stages were included in the model: three (severity stage, 1,2.3) \* two (independent, dependent) \* two (institution, community) plus one (death) |
| 21 | Jones | 2004 | Memantine, No treatment | Markov state transition | 2 years | 6 months | 13HS: 3 (severity 1,2.3) \* 2 (independent, dependent) \* 2 (institutionalisation, community) and Death |
| 22 | Martikainen | 2004 | Family-based program for mild-moderate AD patients vs. standard care | Markov state transition | 5 years | ? | 4 HS: Mild, Moderate, Severe, Death |
| 23 | Green | 2005 | AChEIs, Standard care | Markov state transition | 5 years | 1 month | 3 HS: Pre-FTC, FTC, Dead |
| 24 | Jonsson | 2005 | Memantine, No treatment | Markov state transition | 5 years | 6 months | 13HS: 3 cognition, 2 physical function, 2 care setting, death |
| 25 | Moulin-Romsee | 2005 | FDG PET, standard diagnosis | Decision tree | ? | ? | NA |
| 26 | Antonanzas | 2006 | Memantine, No treatment | Markov state transition | 2 years | 6 months | 7 HS (4 HS +/- independent): Mild–mod AD +/- independent; moderately severe AD +/- independent; severe AD +/- independent; death |
| 27 | Loveman | 2006 | AChEIs, Memantine, standard care | Markov state transition | 5 years | 1 month | 3 HS: Pre-FTC, FTC, Dead |
| 28 | Gagnon | 2007 | Memantine, No treatment | Markov state transition | 2 years | 6 months | 5 HS: Moderate AD and not complete dependence in ADL; mod AD and complete dependence; severe AD and not complete dependence; Severe AD and complete dependence; death |
| 29 | Teipel | 2007 | Donepezil, No treatment | Markov state transition | 5 years, 10 years | 1 year | 5 HS: Mild AD; mild–moderate AD; moderate AD; severe AD; death |
| 30 | Weycker | 2007 | Donepezil+Memantine, Donepezil mono | Markov Microsimulation | Life time | 1 month | 6 HS: Questionable (CDR=0.5), Mild (1), Moderate (2), Severe (3), Profound (4), Terminal (5) and death |
| 31 | Fuh | 2008 | Donepezil, standard care | Markov state transition | 5 years | 1 year | 4 HS: Mild, Moderate, Severe, Dead |
| 32 | Kirbach | 2008 | Olanpazine, No treatment | Markov state transition | 13 years | 6 months | 5 HS: Mild, Moderate, Severe, Nursing home, Dead |
| 33 | Gustavsson | 2009 | AChEIs, No treatment | Markov state transition | 5 years | ? | SHTAC 3HS: Pre-FTC, FTC, Dead  Markov: 4HS MMSE=30–21, 20–15, 14–10, 9–0 |
| 34 | Lopez-Bastida | 2009 | Donepezil, No treatment | Markov state transition | 6, 12, 18, 24, 30 months | 1 month | 4 HS: Mild, Moderate, Severe, Dead |
| 35 | Suh | 2009 | Galantamine, standard care | Markov state transition | 5 years | 1 month | 3 HS: Pre-FTC, FTC, Dead |
| 36 | Wong | 2009 | AChEIs+Memantine, standard care | Decision tree | 24-28 weeks | NA | NA |
| 37 | Getsios | 2010 | Donepezil, standard care | DES | 10 years | NA | NA |
| 38 | Guo | 2010 | Galatamine, Gingko Biloba, No treatment | DES | 10 years | NA | NA |
| 39 | Kasuya | 2010 | Donepezil, No treatment | Markov state transition | 2 years | ? | 5 HS: CDR0.5, 1, 2, 3, Dead |
| 40 | Rive | 2010 | Memantine, No treatment | Markov state transition | 5 years | 1 month | 3 HS: Pre-FTC, FTC, Dead |
| 41 | Budd | 2011 | Screening + Hypothetical DMT, standard care | Markov state transition | 10 years | 6 months | 4 HS: Pre-dementia, Mild, Moderate, Severe AD |
| 42 | Hoogveldt | 2011 | Memantine, standard care | Markov state transition | 5 years | 6 months | 5 HS: moderate-independent; moderate-dependence; severe-independence; severe-dependence; death |
| 43 | Lachaine | 2011 | AChEI+Memantine, AChEI mono | Markov state transition | 7 years | 1 year | 3 HS: Non-institutionalisation; institutionalisation; deceased |
| 44 | Zhang | 2011 | Prevention, standard care | Markov state transition | 20 years | 1 year | 3 HS: No dementia, Dementia, Dead |
| 45 | Biasutti | 2012 | MRI+CLP, standard diagnosis | Markov state transition | 3 & 15 years | 6 months | 5 HS: No AD, Mild, Moderate, Severe AD, death |
| 46 | Bond | 2012 | AChEIs, Memantine, standard care | Markov state transition | 20 years | 1 month | 3 HS: No institution, institution, dead |
| 47 | Djalalov | 2012 | Screening, standard care | Markov state transition | 30 years | 1 year | 7 HS: AMCI, AMCI w/o APOE e4, AMCI w APOE e4, Mild, Moderate, Severe, Dead |
| 48 | Getsios | 2012 | Early assessment, standard care | DES | 10 years | NA | NA |
| 49 | Hartz | 2012 | Donepezil, No treatment | DES | 10 years | NA | NA |
| 50 | Pfeil | 2012 | AChEIs+Memantine, mono | Markov state transition | 7 years | 1 year | 3 HS: Home, Nursing home, Deceased |
| 51 | Rive | 2012 | Memantine, No treatment | Markov state transition | 5 years | 1 month | 3 HS: Pre-FTC, FTC, Dead |
| 52 | Peters | 2013 | Donepezil, standard care | Markov state transition | 20 years | 1 month | 3 HS: Pre-institutionalisation, Institutionalisation, Death |
| 53 | Skoldunger | 2013 | Hypothetical DMT, standard care | Markov state transition | 20 years | 1 year | 5 states: MCI-AD, mild, mod, severe and death |
| 54 | Bermingham | 2014 | CT, MRT, standard care | Markov state transition | Life time | 6 weeks | 4 HS: Mild, Mod, Severe, Death |
| 55 | Touchon | 2014 | AChEIs+Memantine, standard care | Markov state transition | 7 years | 1 year | 3 HS: Non-instutionalised, Institutionalised, Deceased |
| 56 | Valcarcel-Nazco | 2014 | Biomarkers (Ab41 and tau in CSF), standard diagnosis | Decision tree | Life time | NA | NA |
| 57 | Handels | 2015 | Biomarkers (CSF) + hypothetical DMT, standard diagnosis | Decision tree + DES | 30 years | NA | NA |
| 58 | Hornberger | 2015 | F-PET, standard diagnosis | Markov state transition | 10 years | ? | ? |
| 59 | Hu | 2015 | Memantine, No treatment | Markov state transition | 5 years | 6 months | 9 HS: 8 by dependence and agitation + dead |
| 60 | Mirsaeedi-Farahadi | 2015 | Deep brain stimulation, standard care | Markov state transition | 5 years | 1 year | 5 HS: Minimal, Mild, Moderate, Severe, Death |
| 61 | Thibault | 2015 | AChEIs+Memantine, AChEIs mono | DES | 3 years | NA | NA |
| 62 | Yu | 2015 | National Dementia Early Detection Program vs. usual care | Markov state transition | 10 years | ? | 4 HS: Mild, Moderate, Severe, Death |
| 63 | Yang | 2016 | Immunotherapy Aβ42, standard care | Markov state transition | 10 years | 1 year | 4 HS: Mild, Moderate, Severe, Dead |
| 64 | Hornberger | 2017 | Ab-PET, early evaluation, CSF, other diagnosis | Decision tree | 10 years | NA | NA |
| 65 | Lee | 2017 | Cerebrospinal Fluid Biomarkers, standard care | Markov state transition | Life time | 1 month | 12 HS: by severity and place of residence and treatment options |
| 66 | Dowd | 2018 | Connected Health Program, standard care | Markov state transition | 4 years | 1 month | 5 HS: Mild, Moderate, Moderate-Severe, Severe, Dead |
| 67 | Zala | 2018 | AChEIs+Memantine, Mono | Markov state transition | 5 years | 1 month | 3 HS: Pre-FTC, FTC, Dead |

***Abbreviations:*** *AChEI,* acetyl-cholinesterase inhibitor*; AD,* Alzheimer’s disease*; CBA,* cost benefit analysis; *CEA,* cost effectiveness analysis; *CLP,* contrastophore-linker-pharmacophore*; CSF*, cerebrospinal fluid; *CT,* computerised tomography*; CUA,* cost utility analysis; *DES,* discrete event simulation*; CDR,* Clinical Dementia Rating*; DMT,* disease modification therapy; *FDG,* Fluoro-deoxyglucose; *FTC,* full-time care*; HS,* health state*; MMSE*, Mini Mental State Examination; *MRI:* magnetic resonance imaging*; NA,* not available; *PET,* positron emission tomography; *MCI,* mild cognitive impairment; *NPI,* non-pharmacological interventions; *SPECT,* single-photon emission computerized tomography; CBFI, ??; *NDEDP,* National Dementia Early Detection Program; *SHTAC,* Southampton Health Technology Assessments Centre; *AMCI,* asymptomatic mild cognitive impairment; *APOE,* Apolipoprotein E

***Notes***: FTC is defined as the consistent requirement for a significant amount of time for the greater part of the day for care and supervision, regardless of the locus of care or who provide the care. FTC is a function of the dependency that results from declining cognitive ability as well as the appearance of behavioural problems and other factors. Patients who do not yet require FTC are assumed to be living either at home or in a residential setting that does not provide extensive nursing care.

**Table A2.2a: Assessment results of modelling quality using the Philips checklist: Structure**

| **#** | **Study** | **S11** | **S12** | **S13** | **S21** | **S22** | **S23** | **S24** | **S31** | **S32** | **S33** | **S34** | **S35** | **S41** | **S42** | **S51** | **S52** | **S53** | **S61** | **S71** | **S72** | **S73** | **S81** | **S91** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Simon1985 | Y | Y | N | N | NA | Y | Y | Y | N | N | Y | Y/N | Y/N | Y | Y | Y | NA | Y | NA | NA | NA | Y/N | NA |
| 2 | Rechin1994 | Y | Y | N | N | NA | N | NA | Y | N | N | Y | Y | Y/N | Y | N | Y | NA | Y/N | Y | NA | Y | N | N |
| 3 | Henke1997 | Y | Y | N | Y | Y | Y | Y | Y | N | N | Y | Y/N | Y/N | Y/N | Y | Y | NA | Y | Y | Y | Y | N | N |
| 4 | McMhon2000 | Y | Y | N | Y | Y | Y | Y | Y | Y/N | N | Y | Y | Y/N | Y | Y | Y | NA | Y | Y | Y/N | N | N | Y |
| 5 | Caro2002 | Y | Y | N | Y | Y | Y | Y | Y | N | N | Y/N | NA | Y | Y | Y | U | N | Y | Y | Y | NA | Y/N | N |
| 6 | Silverman2002a | Y | Y | N | Y | Y | Y | Y | Y | N | N | Y | Y | Y | Y | Y | Y | NA | U | NA | NA | NA | N | NA |
| 7 | Silverman2002b | Y | Y | N | Y | Y | N | U | Y | N | N | Y | Y | Y | N | Y | N | NA | Y | N | N | NA | Y/N | NA |
| 8 | Kulasingam2003 | Y | Y | N | NA | NA | Y | NA | Y | N | N | Y | Y/N | Y | Y | Y | Y | NA | Y | Y | Y | Y | Y/N | Y |
| 9 | McMahon2003 | Y | Y | N | Y | Y | Y | Y | Y/N | N | N | Y | NA | Y/N | Y | Y | Y | NA | Y | Y | Y | N | N | N |
| 10 | Martikainen2004 | Y | Y | N | Y | Y | Y | Y | Y | NA | N | Y | NA | Y | Y | Y | N | N | Y | Y | Y | N | NA | N |
| 11 | Green2005 | Y | Y | Y | Y | Y | Y | Y | Y | Y/N | Y | Y | Y | Y/N | U | Y | Y | NA | Y | Y | Y | Y | N | Y |
| 12 | Jonsson2005 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | Y | Y | Y | Y | Y | U | Y | Y | Y | U | U |
| 13 | Moulin-Romsee2005 | Y | Y | N | N | NA | N | U | Y | N | N | Y | Y | Y | N | Y | U | N | Y | N | N | NA | N | U |
| 14 | Antonanzas2006 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | Y/N | U | Y | Y | Y | Y | N | Y/N | N | U | Y |
| 15 | Loveman2006 | Y | Y | Y | Y | Y | Y | Y | Y | U | Y | Y | Y | Y | Y | Y | Y | NA | Y | Y | Y | Y | U | Y |
| 16 | Gagnon2007 | Y | Y | N | Y | Y | Y | Y | U | U | N | Y | Y | Y | U | Y | N | Y | U | U | Y/N | N | U | Y |
| 17 | Teipei2007 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | U | U | Y | N | N | Y | Y | Y | Y | Y | Y |
| 18 | Wycker2007 | Y | Y | N | Y | Y | Y | Y | N | U | N | Y | U | N | N | Y | N | N | Y | Y | Y | Y | U | Y |
| 19 | Fuh2008 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | U | Y | Y | N | NA | Y | Y | Y | Y | U | Y/N |
| 20 | Kirbach2008 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | U | Y | N | N | N | Y | Y | Y | NA | U | Y |
| 21 | Gustavsson2009 | Y | Y | N | N | NA | Y | Y | Y | U | Y | Y | Y | U | Y | Y | U | N | Y | Y | Y | N | U | N |
| 22 | Lopez-Bastida2009 | Y | Y | N | Y | Y | Y | Y | Y | U | U | Y | Y | Y/N | Y | Y | N | N | Y | Y | Y/N | N | U | Y |
| 23 | Suh2009 | Y | Y | N | Y | N | Y | Y | Y | U | N | Y | Y | U | Y | Y | N | N | Y | Y | Y/N | N | U | N |
| 24 | Wong2009 | Y | Y | N | Y | Y | Y | Y | Y | N | N | Y | Y | Y/N | N | Y | N | Y | U | U | Y/N | N | N | NA |
| 25 | Guo2010 | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y/N | Y | Y | N | Y | Y | Y | Y | Y | Y | Y |
| 26 | Kasuya2010 | Y | Y | N | Y | Y | N | Y | Y | N | N | Y/N | Y | Y/N | Y | Y | N | N | Y | Y | N | N | N | N |
| 27 | Getsios2010 | Y | Y | N | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | N | Y | Y | Y/N | Y | Y | NA |
| 28 | Rive2010 | Y | Y | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | NA | Y | Y | Y/N | N | U | Y/N |
| 29 | Budd2011 | Y | Y | N | N | Y | Y | U | Y | U | N | Y/N | N | Y | U | Y | N | NA | Y | Y | Y/N | NA | N | Y |
| 30 | Hoogveldt2011 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | Y/N | Y | Y | N | N | Y | Y | Y | N | U | Y |
| 31 | Lachaine2011 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | Y | Y | Y | Y | NA | Y | Y | Y/N | Y | U | Y/N |
| 32 | Zhang2011 | Y | Y | N | Y | Y | Y | Y | Y | N | N | Y | Y | Y/N | U | Y | U | N | Y | Y | Y | Y | N | Y |
| 33 | Bond2012 | Y | Y | Y | Y | Y | Y | Y | Y | U | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | U | Y |
| 34 | Djalalov2012 | Y | Y | N | Y | Y | Y | Y | Y | Y/N | N | Y | NA | Y/N | Y/N | Y | N | Y/N | Y | Y | Y | NA | Y/N | Y |
| 35 | Biasutti2012 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | U | Y/N | Y | Y | Y | NA | Y | Y | Y | Y | U | Y |
| 36 | Getsios2012 | Y | Y | N | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | N | N | Y | Y | Y/N | Y | Y | NA |
| 37 | Hartz2012 | Y | Y | N | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y/N | Y | Y | N | N | Y | Y | Y | Y | Y | NA |
| 38 | Pfeil2012 | Y | Y | N | Y | Y | Y | Y | Y | N | N | Y | U | Y/N | Y | Y | N | N | Y | Y | N | NA | N | Y/N |
| 39 | Rive2012 | Y | Y | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | NA | Y | Y | Y | N | U | Y/N |
| 40 | Peters2013 | Y | Y | Y | N | NA | Y | NA | Y | U | Y | Y | Y | Y | Y | Y | N | Y | U | Y | Y | Y | U | Y |
| 41 | Skoldunger2013 | Y | Y | N | Y | Y | Y | Y | Y | U | Y | Y | U | Y/N | U | Y | NA | NA | Y | Y | Y | NA | Y | N |
| 42 | Bermingham2014 | Y | Y | N | Y | Y | Y | Y | Y | Y/N | Y | Y | Y/N | Y | Y | Y | U | Y | Y | Y | Y/N | Y | U | Y/N |
| 43 | Touchon2014 | Y | Y | N | Y | Y | Y | Y | Y | N | N | Y | U | Y/N | Y/N | Y | Y | NA | Y | Y | Y | NA | U | Y/N |
| 44 | Valcarcel-Nazco2014 | Y | Y | N | Y | Y | U | Y | Y | Y/N | N | Y | Y/N | Y/N | U | Y | U | N | Y/N | NA | NA | NA | N | NA |
| 45 | Hu2015 | Y | Y | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | Y/N | Y | N | Y | Y | Y | Y/N | Y | Y | Y |
| 46 | Handels2015 | Y | Y | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | U | Y/N | NA | Y/N | NA |
| 47 | Hornberger2015 | Y | Y | N | N | NA | N | NA | U | N | N | Y | N | N | NA | Y | U | N | U | Y | Y | N | N | N |
| 48 | Mirsaeedi2015 | Y | Y | N | N | NA | N | NA | Y | N | N | Y | N | Y/N | Y/N | Y | Y | NA | Y | Y | Y/N | N | N | Y |
| 49 | Thibault2015 | Y | Y | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y/N | Y | Y | Y | NA | Y | Y | Y | N | Y | NA |
| 50 | Yu2015 | Y | Y | N | Y | Y | Y | Y | Y | Y/N | N | Y | Y/N | Y/N | Y/N | Y | Y | NA | Y | Y | Y | N | N | N |
| 51 | Yang2016 | Y | Y | N | Y | Y | Y | Y | Y | NA | N | Y | NA | Y/N | Y | Y | N | NA | Y | Y | Y | NA | NA | Y |
| 52 | Lee2017 | Y | Y | N | Y | Y | Y | Y | Y | Y/N | N | Y | Y/N | Y | Y | Y | N | N | Y | Y | Y | Y | Y/N | Y |
| 53 | Hornberger2017 | Y | Y | N | N | NA | N | NA | U | N | N | Y | Y/N | Y/N | Y | Y | N | N | Y | Y | Y | Y | N | N |
| 54 | Dowd2018 | Y | Y | N | Y | Y | Y | Y | Y | U | N | Y | Y | Y/N | Y | Y | NA | NA | Y | Y | Y/N | NA | Y/N | Y |
| 55 | Zala2018 | Y | Y | N | Y | Y | Y | Y | Y | Y | N | Y | Y | Y/N | Y | Y | Y | NA | Y | U | N | N | U | Y |

**Table A2.2b: Assessment results of modelling quality using the Philips checklist: Data**

| **#** | **Study** | **D11** | **D12** | **D13** | **D14** | **D15** | **D16** | **D21** | **D2a1** | **D2a2** | **D2a3** | **D2a4** | **D2b1** | **D2b2** | **D2b3** | **D2c1** | **D2c2** | **D2c3** | **D31** | **D32** | **D33** | **D34** | **D35** | **D41** | **D42** | **D4a1** | **D4b1** | **D4c1** | **D4d1** | **D4d2** | **D4d3** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Simon1985 | Y | N | Y | N | N | Y/N | N | NA | U | NA | NA | N | NA | N | Y | N | NA | Y | N | Y | N | N | N | N | N | Y | Y | N | N | Y/N |
| 2 | Rechin1994 | Y | N | Y | N | N | NA | N | Y | U | N | N | NA | NA | NA | NA | NA | NA | Y | N | Y | N | N | N | N | N | N | Y | N | NA | NA |
| 3 | Henke1997 | Y/N | N | Y | N | N | NA | U | Y | U | N | N | U | Y/N | Y/N | NA | NA | NA | Y | N | Y | N | N | N | N | N | Y | N | N | NA | NA |
| 4 | McMahon2000 | Y | N | Y | N | N | Y/N | U | Y | NA | U | N | U | Y/N | Y/N | Y | Y | NA | Y | N | Y | N | NA | N | N | N | Y | N | N | NA | NA |
| 5 | Caro2002 | Y | NA | Y | N | N | NA | Y/N | Y | NA | N | N | Y | Y/N | N | Y | Y | N | Y | NA | Y/N | N | N | N | N | Y | N | N | N | NA | NA |
| 6 | Silverman2002a | Y | N | Y/N | Y | N | NA | U | N | U | NA | NA | U | NA | NA | NA | NA | NA | N | N | Y/N | N | N | N | N | N | Y | N | Y | N | Y |
| 7 | Silverman2002b | Y | N | Y | Y | Y/N | NA | N | N | U | NA | NA | N | NA | NA | NA | NA | NA | Y | N | Y/N | N | N | N | N | N | Y | N | Y | N | Y/N |
| 8 | Kulasingam2003 | Y | N | Y | Y | N | N | N | N | U | N | NA | U | Y/N | N | Y | Y | N | Y | N | Y | NA | NA | N | N | N | Y | N | Y/N | N | Y |
| 9 | McMahon2003 | Y | N | Y | N | N | Y | N | Y | Y | U | NA | NA | NA | NA | Y | Y | NA | Y/N | N | Y | N | NA | N | N | N | Y | N | Y | Y | Y/N |
| 10 | Martikainen2004 | Y | N | Y | N | N | NA | NA | Y | NA | N | N | NA | NA | NA | Y | Y | N | Y | NA | Y/N | Y | Y | N | N | Y | Y | N | Y | Y | Y |
| 11 | Green2005 | Y | Y | Y | Y | Y/N | NA | Y | Y | NA | N | NA | Y | Y | Y | Y | Y | N | Y | Y | Y | Y/N | N | N | N | Y | Y | N | Y | Y | Y/N |
| 12 | Jonsson2005 | Y | N | Y | N | N | NA | U | N | U | N | NA | U | Y/N | Y | Y | Y | U | Y | N | Y | N | N | N | N | N | N | Y | N | N | N |
| 13 | Moulin-Romsee2005 | Y | N | Y | N | N | NA | N | N | U | NA | NA | N | NA | NA | NA | NA | NA | Y | N | Y | N | N | N | N | N | N | N | Y | N | Y/N |
| 14 | Antonanzas2006 | Y | N | Y | N | N | NA | Y | N | Y | Y | NA | Y | Y | Y | NA | NA | NA | Y | N | Y | Y/N | Y | N | NA | Y | Y | N | Y | Y | Y |
| 15 | Loveman2006 | Y | Y | Y | Y | Y | NA | Y | Y | Y | Y | NA | Y | Y | Y | Y | Y | U | Y | Y | Y | Y/N | Y | Y | NA | Y | Y | Y | Y | Y | Y/N |
| 16 | Gagnon2007 | Y | N | Y | U | Y | N | U | N | U | Y | NA | Y | U | Y | U | Y | N | Y | N | U | Y/N | Y | N | N | N | N | N | Y | Y | NA |
| 17 | Teipei2007 | Y | N | Y | N | N | NA | Y | U | U | Y | NA | Y | Y/N | N | Y | Y | N | Y | Y | Y | N | N | N | N | N | N | N | N | N | N |
| 18 | Wycker2007 | Y | U | Y | N | N | NA | Y | Y | U | N | N | U | Y/N | Y | Y | Y | U | Y | N | Y | N | N | N | N | Y | Y | N | N | N | Y |
| 19 | Fuh2008 | Y | N | Y | N | N | NA | U | Y | Y | N | N | Y | Y | U | Y | Y | N | Y | N | Y | Y/N | Y | N | N | N | Y | N | Y | Y | Y/N |
| 20 | Kirbach2008 | Y | Y | Y | N | N | NA | U | Y | U | N | N | Y/N | Y/N | N | U | Y | N | Y | Y | Y | N | N | N | N | N | Y | N | N | N | N |
| 21 | Gustavsson2009 | Y | N | Y | N | Y | NA | U | Y | U | N | N | Y | U | Y | U | N | N | Y | N | U | Y/N | N | N | N | N | N | Y | N | N | N |
| 22 | Lopez-Bastida2009 | Y | Y | Y | N | N | NA | U | Y | U | Y | NA | U | U | U | U | Y | N | Y | U | Y | N | Y | N | N | Y | N | N | Y | Y | Y/N |
| 23 | Suh2009 | Y | N | Y | Y | N | NA | U | Y | U | Y | NA | Y | Y/N | Y/N | Y | Y | N | Y | N | Y | Y/N | Y | N | N | Y | Y | N | Y | Y | Y/N |
| 24 | Wong2009 | Y | N | Y | Y | Y/N | NA | Y/N | Y | U | NA | NA | N | N | N | NA | NA | NA | Y | N | Y | Y/N | N | N | N | NA | N | N | Y | Y | Y/N |
| 25 | Guo2010 | Y | N | Y | N | Y/N | Y/N | U | Y | Y | NA | NA | Y | Y | Y | NA | NA | NA | Y | NA | Y | Y | Y | N | N | N | Y | Y | Y | Y | Y/N |
| 26 | Kasuya2010 | Y/N | N | Y/N | N | N | NA | N | N | Y/N | N | NA | NA | NA | NA | Y | Y | N | Y/N | N | Y | N | N | N | N | N | N | N | N | N | NA |
| 27 | Getsios2010 | Y | Y | Y | Y | Y | NA | Y | Y | Y | NA | NA | Y | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | N | N | N | Y | Y | Y | Y | Y/N |
| 28 | Rive2010 | Y | N | Y | Y | Y | NA | Y | Y | U | Y | NA | Y | Y/N | Y/N | Y | Y | Y | Y | N | Y | Y | Y | N | N | N | N | N | Y | Y | Y |
| 29 | Budd2011 | U | N | Y/N | N | N | NA | N | Y | U | N | N | N | N | N | NA | NA | NA | Y/N | N | Y/N | N | N | N | N | N | N | N | N | N | NA |
| 30 | Hoogveldt2011 | Y | N | Y | N | N | Y/N | N | U | U | N | N | U | Y/N | N | N | Y | N | Y | N | Y | Y/N | Y | N | N | N | N | N | Y | Y | Y/N |
| 31 | Lachaine2011 | Y | N | Y | N | N | NA | N | Y | U | N | N | Y | Y/N | N | Y | Y | N | Y | N | Y | Y/N | Y | N | N | N | N | N | Y | Y | Y/N |
| 32 | Zhang2011 | Y | N | Y | N | U | NA | N | Y | U | N | N | N | N | N | Y | Y | Y | Y | N | Y | Y | Y | N | N | Y | N | N | Y | Y | N |
| 33 | Bond2012 | Y | Y | Y | Y | Y | NA | Y | Y | Y | Y | NA | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | NA | Y | Y | Y | Y | Y | NA |
| 34 | Djalalov2012 | Y | N | Y/N | Y/N | Y/N | Y | Y/N | Y | U | N | NA | Y | Y/N | N | Y | Y | N | Y | N | Y/N | Y | Y | N | N | N | Y | N | Y | Y | NA |
| 35 | Biasutti2012 | Y | N | Y | N | N | NA | U | Y | U | N | N | U | Y/N | N | Y | Y | N | Y | N | Y | Y/N | Y | N | N | Y | Y | N | Y | Y | Y/N |
| 36 | Getsios2012 | Y | N | Y | N | Y | NA | Y | Y | Y | NA | NA | Y | Y/N | Y/N | Y | Y | Y | Y | N | Y | Y | Y | N | N | N | Y | N | Y | Y | Y/N |
| 37 | Hartz2012 | Y | Y | Y | Y | Y | NA | Y | Y | U | NA | NA | Y | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | N | N | N | Y | Y | Y | Y | Y/N |
| 38 | Pfeil2012 | Y | N | Y | N | N | NA | NA | N | U | N | N | Y | N | N | Y | Y | N | Y | N | Y | Y/N | Y/N | N | N | Y | Y | N | Y | Y | Y/N |
| 39 | Rive2012 | Y | N | Y | Y | N | NA | Y | Y | U | Y | NA | Y | Y/N | Y/N | Y | Y | N | Y | Y/N | Y | U | Y | N | N | N | N | N | Y | Y | Y/N |
| 40 | Peters2013 | Y | Y | Y | U | Y/N | Y | Y | Y | Y | N | N | Y | Y | Y | Y | Y | N | Y | Y/N | Y | Y/N | Y | Y | NA | Y | Y | Y | Y | Y | Y |
| 41 | Skoldunger2013 | Y | N | Y | N | N | NA | Y/N | Y | U | N | N | Y/N | NA | NA | Y | Y | N | Y | NA | Y | Y/N | Y | N | N | Y | N | Y | Y | Y | Y/N |
| 42 | Bermingham2014 | Y | U | Y | Y | Y/N | Y | U | Y | Y | N | N | Y | Y/N | Y/N | Y | Y | N | Y | N | Y | Y | Y | N | N | N | N | N | Y | Y | Y |
| 43 | Touchon2014 | Y | N | Y | N | Y | NA | N | Y/N | U | Y | NA | Y | NA | NA | Y | Y | N | Y | N | Y | Y/N | Y | N | N | Y | N | N | Y | Y | Y/N |
| 44 | Valcarcel-Nazco2014 | Y/N | N | Y/N | Y | N | NA | Y | Y | NA | NA | NA | Y | NA | NA | NA | NA | NA | Y | N | Y | Y/N | Y | N | N | N | Y | N | Y | NA | Y/N |
| 45 | Hu2015 | Y | N | Y | N | N | Y | N | Y | U | N | NA | N | Y/N | N | NA | NA | NA | Y | N | U | Y/N | Y | N | N | N | N | N | Y | Y | Y/N |
| 46 | Handels2015 | Y | N | Y | Y | Y/N | NA | Y | Y | U | NA | NA | Y | Y/N | Y/N | Y | Y | U | Y | N | Y | Y/N | Y | N | N | N | Y | N | Y | Y | Y |
| 47 | Hornberger2015 | Y | N | Y/N | N | N | NA | N | Y | U | N | N | Y/N | Y/N | Y/N | Y | Y | N | U | N | U | Y/N | Y | N | N | N | U | N | Y | Y | Y/N |
| 48 | Mirsaeedi2015 | Y | Y | Y | Y | Y | NA | U | Y | U | Y | NA | Y/N | U | U | Y | Y | Y | Y | N | Y | Y/N | Y | N | N | N | U | N | Y | Y | Y/N |
| 49 | Thibault2015 | Y/N | N | Y | N | N | NA | N | Y | U | NA | NA | Y | NA | NA | Y | Y | N | Y | N | Y | Y | Y | N | N | N | Y | N | Y | Y | Y |
| 50 | Yu2015 | Y | N | Y | N | N | NA | Y/N | Y | U | N | N | U | Y/N | Y/N | Y | Y | N | Y | N | Y/N | Y/N | Y | N | N | N | Y | N | Y | Y | Y/N |
| 51 | Yang2016 | Y | NA | Y/N | Y/N | N | NA | N | Y | Y/N | NA | NA | N | N | N | Y | Y | N | Y | N | Y/N | Y/N | Y | N | N | N | N | N | Y | Y | NA |
| 52 | Lee2017 | Y | N | Y | N | Y/N | NA | Y | Y | Y | N | N | NA | NA | NA | Y | Y | NA | Y | Y | Y | Y/N | Y | N | N | N | Y | Y | Y | Y | Y/N |
| 53 | Hornberger2017 | Y | N | Y | N | N | NA | N | Y | U | U | NA | NA | NA | NA | Y | Y | N | Y | Y | Y/N | N | Y | N | N | N | Y | N | Y | Y | Y/N |
| 54 | Dowd2018 | Y | N | Y | N | N | Y/N | Y | Y | Y/N | N | NA | NA | NA | NA | Y | Y | U | Y | NA | Y | Y/N | N | N | N | N | Y | N | N | N | NA |
| 55 | Zala2018 | Y | N | Y | Y | Y | NA | Y | Y | NA | N | N | Y | Y/N | Y/N | Y | Y | Y | Y | N | Y | NA | NA | N | N | N | N | Y | Y | Y | Y |

**Table A2.2c: Assessment results of modelling quality using the Philips checklist: Consistency**

| **#** | **Study** | **C11** | **C21** | **C22** | **C23** | **C24** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Simon1985 | N | Y | Y | N | N |
| 2 | Rechin1994 | N | Y | NA | N | N |
| 3 | Henke1997 | N | Y | NA | N | N |
| 4 | McMahon2000 | N | Y | NA | N | N |
| 5 | Caro2002 | NA | Y | NA | N | Y |
| 6 | Silverman2002a | N | Y | NA | N | Y |
| 7 | Silverman2002b | N | Y | NA | N | N |
| 8 | Kulasingam2003 | N | Y | NA | N | Y |
| 9 | McMahon2003 | N | Y | NA | N | Y |
| 10 | Martikainen2004 | NA | Y | NA | NA | N |
| 11 | Green2005 | NA | Y | NA | N | Y |
| 12 | Jonsson2005 | N | Y | NA | N | Y |
| 13 | Moulin-Romsee2005 | N | Y | NA | N | N |
| 14 | Antonanzas2006 | N | Y | N | N | Y |
| 15 | Loveman2006 | N | Y | NA | N | Y |
| 16 | Gagnon2007 | N | Y | NA | Y | Y |
| 17 | Teipei2007 | N | Y | NA | N | Y |
| 18 | Wycker2007 | N | Y | NA | N | Y |
| 19 | Fuh2008 | N | Y | NA | N | Y |
| 20 | Kirbach2008 | N | Y | NA | N | N |
| 21 | Gustavsson2009 | N | Y | Y | Y | Y |
| 22 | Lopez-Bastida2009 | N | Y | NA | N | Y |
| 23 | Suh2009 | N | Y | NA | N | Y |
| 24 | Wong2009 | N | Y | NA | N | N |
| 25 | Guo2010 | N | Y | NA | N | Y |
| 26 | Kasuya2010 | N | Y | NA | N | N |
| 27 | Getsios2010 | N | Y | Y | N | Y |
| 28 | Rive2010 | N | Y | N | N | Y |
| 29 | Budd2011 | N | Y | N | N | Y |
| 30 | Hoogveldt2011 | N | Y | N | N | Y |
| 31 | Lachaine2011 | N | Y | NA | N | Y |
| 32 | Zhang2011 | N | Y | N | N | N |
| 33 | Bond2012 | Y | Y | NA | N | Y |
| 34 | Djalalov2012 | N | Y | NA | N | NA |
| 35 | Biasutti2012 | N | Y | NA | N | NA |
| 36 | Getsios2012 | N | Y | Y | N | Y |
| 37 | Hartz2012 | N | Y | NA | N | Y |
| 38 | Pfeil2012 | N | Y | NA | N | N |
| 39 | Rive2012 | N | Y | N | N | Y |
| 40 | Peters2013 | N | Y | NA | N | Y |
| 41 | Skoldunger2013 | N | Y | Y | N | NA |
| 42 | Bermingham2014 | Y | Y | NA | U | NA |
| 43 | Touchon2014 | N | Y | NA | N | N |
| 44 | Valcarcel-Nazco2014 | N | Y | NA | N | NA |
| 45 | Hu2015 | N | Y | NA | N | Y |
| 46 | Handels2015 | N | Y | NA | N | Y |
| 47 | Hornberger2015 | N | Y | NA | N | N |
| 48 | Mirsaeedi2015 | N | Y | NA | N | N |
| 49 | Thibault2015 | N | Y | NA | N | Y |
| 50 | Yu2015 | N | Y | N | N | NA |
| 51 | Yang2016 | N | Y | NA | N | NA |
| 52 | Lee2017 | N | Y | NA | N | Y/N |
| 53 | Hornberger2017 | N | Y | NA | N | Y |
| 54 | Dowd2018 | U | Y | NA | N | Y |
| 55 | Zala2018 | NA | Y | N | N | Y |

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