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| --- | --- | --- |
| Supplementary Table 1  Read codes used to identify dementias of interest | | |
| Disease | Read code | Description |
| Alzheimer's disease | Eu00.00  Eu00000  Eu00011  Eu00012  Eu00013  Eu00100  Eu00111  Eu00112  Eu00113  Eu00200  Eu00z00  Eu00z11  F110.00  F110000  F110100  Fyu3000 | [X]\*Dementia in Alzheimer's  Dementia in Alzheimer's disease with early onset  [X]Presenile dementia,Alzheimer  Primary degenerative dementia, Alzheimer's type, presenile onset  [X]Alzheimer's disease type 2  [X]Late onset Alzheimer’s dementia  [X]Alzheimer's disease type 1  [X]Senile dementia, Alzheimer  Primary degenerative dementia of Alzheimer's type, senile onset  [X]Atypical/mixed Alzheimer's  [X]Alzheimer's disease unspecified  [X]Alzheimer's dementia unspecified  Alzheimer's disease  Alzheimer disease with early onset  Alzheimer's disease with late onset  [X]Other Alzheimer's disease |
| Dementia with Lewy bodies | Eu02500  F116.00 | [X]Lewy body dementia  Lewy body disease |
| Frontotemporal dementia | Eu02000  F111.00  F118.00 | [X]Dementia in Pick's disease  Pick's disease  Frontotemporal degeneration |
| Normal-pressure hydrocephalus | F113000 | Normal pressure hydrocephalus |
| Parkinson's dementia | Eu02300  F11x900 | [X]Dementia in Parkinson's  Cerebral degenerative Parkinson disease |
| Vascular dementia | E004.00  E004.11  E004000  E004100  E004200  E004300  E004z00  Eu01.00  Eu01.11  Eu01000  Eu01100  Eu01111  Eu01200  Eu01300  Eu01y00  Eu01z00 | Arteriosclerotic dementia  Multi infarct dementia  Arteriosclerotic dementia-uncomplicated  Arteriosclerotic dementia+delirium  Arteriosclerotic dementia+paranoia  Arteriosclerotic dementia+depression  Arteriosclerotic dementia NOS  [X]Vascular dementia  [X]Arteriosclerotic dementia  [X]Vascular dementia of acute onset  [X]Multi-infarct dementia  [X]Predominantly cortical dementia  [X]Subcortical vascular dementia  [X]Mix cortical/subcortical vascular dementia  [X]Other vascular dementia  [X]Vascular dementia unspecified |
| Other dementia-like conditions | 1461.00  1B1A.00  1B1A.12  28E..00  28E0.  28E1.  28E2.  388m.00  388m.11  388V .00  3A...12  3AD1.00  3AD2.00  3AD3.00  3AE..00 3AE1.00  3AE2.00  3AE3.00  3AE4.00  3AE5.00  3AE6.00  3AF..00  6AB..00  7P10400  8HTY.00  E00..00  E00..11  E00..12  E000.00  e000.00  E001.00  E001000  E001100  E001200  E001300  E001z00  E002.00  E002000  E002100  E002z00  E003.00  E00y.00  E00y.11  E00z.00  E0110  E011000  E0111  E011100  E0112  E011200  E011z  E011z00  E012.00  E012.11  E0120  E012000  E02y1  E02y100  E02y2  E041.00  E2A1000  E2A1100  Eu02.00  Eu02z00  Eu02z11  Eu02z12  Eu02z13  Eu02z14  Eu02z15  Eu02z16  Eu04100  Eu05700  Eu10611  Eu10711  F11x000  Z7C1.00  Z7CE415  Z7CE611  Z7CE615  Z7CE616  Z7CEA11  Z7CEA13  Z7CEH13  Z7CEH15  Z7CFO00  Z7CFO11  ZR1H.00  ZR1I.00  ZR1T.00  ZR2X.00  ZR2X.12  ZR2X.13  ZR3V .00  ZR3V.11  ZR3V .12  ZRa3.00  ZRa3.11  ZRaA.00  ZRaA.11  ZRaA100  ZRaA200  ZRaY .00  ZRhS.00  ZRhS.11  ZRhS100  ZRrg.00  ZRrh.00  ZRrO.00  ZRrO.11  ZRV9.00  ZRV9.11  ZRVa.00  ZRVa.11  ZS7C500 | H/O: dementia  Memory loss – amnesia  Memory loss symptom  Cognitive decline  Mild cognitive impairment  Moderate cognitive impairment  Severe cognitive impairment  Mini-mental state examination  MMSE score  Mini mental state score  Dementia assessment  Ten item dementia test  Thirty seven item dementia test  Six item cognitive impairment test  Global deterioration scale: assessment of primary degenerative dementia  GDS level 2 - very mild cognitive decline  GDS level 3 - mild cognitive decline  GDS level 4 - moderate cognitive decline  GDS level 5 - moderately severe cognitive decline  GDS level 6 - severe cognitive decline  GDS level 7 - very severe cognitive decline  Addenbrooke's cognitive examination revised  Dementia annual review  Neuropsychology test of memory  Referral to memory clinic  Senile and presenile organic psychotic conditions  Senile dementia  Senile/presenile dementia  Senile dementia-uncomplicated  Uncomplicated senile dementia  Presenile dementia  Presenile dementia – uncomplicated  Presenile dementia + delirium  Presenile dementia + paranoia  Preseniledementia+depression  Presenile dementia NOS  Senile dementia with depressive or paranoid features  Senile dementia + paranoia  Senile dementia + depression  Senile dementia with depressive or paranoid features NOS  Senile dementia + delirium  Other senile and presenile organic psychoses  Presbyophrenic psychosis  Senile or presenile psychoses NOS  Korsakov's alcoholic psychosis  Korsakov's alcoholic psychosis  Korsakov + peripheral neuritis  Korsakov's alcoholic psychosis with peripheral neuritis  Wernicke-Korsakov syndrome  Wernicke-Korsakov syndrome  Alcohol amnestic syndrome NOS  Alcohol amnestic syndrome NOS  Other alcoholic dementia  Alcoholic dementia NOS  Chronic alcoholic brain syndrome  Chronic alcoholic brain syndrome  Drug-induced dementia  Drug-induced dementia  Drug-induced amnestic syndrome  Dementia in conditions EC  Mild memory disturbance  Organic memory impairment  [X]Dementia in disease EC  [X]Unspecified dementia  [X]Presenile dementia NOS  [X]Presenile psychosis NOS  [X]Primary degenerative dementia NOS  [X]Senile dementia NOS  [X]Senile psychosis NOS  [X]Senile dementia,depression/paranoia  [X]Delirium superimposed on dementia  [X]Mild cognitive disorder  [X]Korsakov's psychosis, alcohol induced  [X]Alcoholic dementia NOS  Cerebral degeneration due to alcoholism  Impaired cognition  Loss of memory  Memory loss  Loss of memory  LOM - Loss of memory  Impairment of working memory  Impairment of primary memory  Bad memory  Poor memory  Poor long-term memory  Long-term memory loss  Allen cognitive level screening tool  Allen cognitive performance test  Arizona battery for communication disorders of dementia  Blessed dementia rating scale  BDRS - Blessed dementia rating scale  Information-memory-concentration test  Clinical dementia rating scale  DRS - Clinical dementia rating scale  CDR - Clinical dementia rating scale  Middlesex elderly assessment of mental state  MEAMS - Middlesex elderly assessment of mental state  Mini-mental state examination  MMSE - Mini-mental state examination  Modified mini-mental state 3MS examination  Modified mini-mental state examination  Neurobehavioral cognitive status examination  Rivermead behavioral memory test  RBMT - Rivermead behavioral memory test  Rivermead behavioral memory test - adult version  Wechsler memory scale revised  Williams memory assessment scales  Wechsler memory scale  WMS - Wechsler memory scale  Kendrick battery for detection of dementia in the elderly  Kendrick cognitive tests for the elderly  Lowenstein occupational therapy cognitive assessment  LOTCA - Lowenstein occupational therapy cognitive assessment  Language disorder of dementia |

\*[X] indicates terms that have been added to the Read codes in order to ensure that every International Classification of Diseases 10th revisioncode is cross-mapped to (from a Read code).

GDS, GlobalDeterioration Scale; MMSE, Mini-Mental State Examination; NOS, not otherwise specified.

Supplementary Table 2

International Classification of Diseases 10th revision (ICD-10) codes used to identify dementias of interest

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| Disease | ICD-10 Code | Description |
| Alzheimer’s disease | G30.x  F00.x | Alzheimer disease  Dementia in Alzheimer disease |
| Dementia with Lewy bodies | G31.8 | Other specified degenerative diseases of nervous system (Grey-matter degeneration, Lewy body disease, subacute necrotizing encephalopathy) |
| Frontotemporal dementia | G31.0.  F02.0 | Circumscribed brain atrophy (frontotemporal dementia, Pick disease, progressive isolated aphasia)  Dementia in Pick disease |
| Normal-pressure hydrocephalus | G91.2 | Normal pressure hydrocephalus |
| Parkinson's dementia | F02.3 | Dementia in Parkinson disease |
| Vascular dementia | F01.x | Vascular dementia |
| Other dementia-like conditions | F10.5  F10.6  F10.7.  G31.2  F11.6  F12.6  F13.6  F14.6  F15.6.  F16.6  F17.6  F18.6  F19.6.  E51.2  F04  R41.3  R41.1  R44.0  R41.2  F02.1  F02.2  F02.8  F03  F05.1  F06.7  F29  G31.1  G31.9  G32.x | Mental and behavioral disorders due to use of psychotic disorder  Mental and behavioral disorders due to use of alcohol, amnestic syndrome  Mental and behavioral disorders due to use of alcohol, residual and late-onset psychotic disorder  Degeneration of nervous system due to alcohol  Mental and behavioral disorders due to use of opioids, amnesic syndrome  Mental and behavioral disorders due to use of cannabinoids, amnesic syndrome  Mental and behavioral disorders due use of sedatives or hypnotics, amnesic syndrome  Mental and behavioral disorders due to use of cocaine, amnesic syndrome  Mental and behavioral disorders due to use of other stimulants including caffeine, amnesic syndrome  Mental and behavioral disorders due to use of hallucinogens, amnesic syndrome  Mental and behavioral disorders due to use of tobacco, amnesic syndrome  Mental and behavioral disorders due to use of volatile solvents, amnesic syndrome  Mental and behavioral disorders due to multiple drug use and use of other psychoactive substances, amnesic syndrome  Wernicke encephalopathy  Organic amnesic syndrome, not induced by alcohol or other psychoactive substances  Other amnesia  Anterograde amnesia  Auditory hallucinations  Retrograde amnesia  Dementia in Creutzfeldt-Jakob disease  Dementia in Huntington disease  Dementia in other specified diseases classified elsewhere  Unspecified dementia  Delirium superimposed on dementia  Mild cognitive disorder  Unspecified nonorganic psychosis  Senile degeneration of brain, not elsewhere classified  Degenerative disease of nervous system, unspecified  Other degenerative disorders of nervous system in diseases classified elsewhere |

Supplementary Table 3

Estimation of costs for each category of resource use

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| Category of resource use | Cost estimation |
| Consultations | Calculated using the unit costs available from the Personal Social Services Research Unit (PSSRU) [1].  Per-minute cost of an encounter for nurses by consultation type (clinical, surgery, home visit, telephone) was multiplied by the average length of a consultation to obtain an estimated unit cost per consultation with a nurse. This cost was then applied to each consultation record for that type.  The average cost of a GP consultation was directly available from PSSRU for each consultation type.  Total consultation costs were estimated as the sum of costs for all consultations across both types of providers. |
| Referrals and laboratory/diagnostic tests | Costs for referrals for outpatient visits as well as laboratory and diagnostic tests were calculated using the unit costs available from the National Health Service (NHS). |
| Hospitalizations | Hospital Episodes Statistics (HES) data contain information at both episode and spell levels (a spell consists of one or more consecutive and/or overlapping episode). Because the NHS pays hospitals at the spell level, the costs of hospitalizations were calculated using the unit costs for each spell-level Healthcare Resource Group (HRG) as available from the NHS [2].  HRGs depend on a variety of data elements associated with a hospital stay, including procedures and diagnoses, length of stay, number of days with critical care service, physician specialty, and patient age. The HRG for each spell was identified using the HRG 4+ Grouper (available from the NHS [2]).  The spell cost was determined by the HRG as well as admission method (e.g., elective versus non-elective), patient classification (e.g., day case versus regular day/night admission), and length of stay. |
| Prescription drugs | Estimated using First Databank [3], which provides the price for drugs by package size (e.g., 28 tablets) within each multilex code. The Clinical Practice Research DataLink(CPRD) data did not contain information about package size but instead provided the quantity prescribed. Therefore, the cost of each prescription was estimated by multiplying the quantity prescribed by the median price per unit for that product (identified by multilex codes). Price per unit (e.g., per tablet) was calculated by dividing price per package-by-package size. The median price per unit was calculated across all records for a product. |

# REFERENCES

[1] Personal Social Services Research Unit (PSSRU) (2012) Unit costs of health and social care 2012, http://www.pssru.ac.uk/project-pages/unit-costs/2012/, Accessed on June 30, 2015.

[2] UK Department of Health. National schedule of reference costs 2012-13 for NHS trusts and NHS foundation trusts. Available at: https://www.gov.uk/government/publications/nhs-reference-costs-2012-to-2013, Last updated January 22, 2015, Accessed on June 30, 2015.

[3] First Databank, www.fdbhealth.co.uk, Accessed February 5, 2015.