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Mapping Dementia Research in the UK

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Executive summary

> **Dementia remains the leading cause of death in the UK, with significant impacts on families, health and social care systems, and on the economy, with annual costs estimated at £42 billion. Approximately one million people currently live with dementia in the UK, a figure projected to rise by between 40% and 70% by 2040, underscoring the urgent need for effective research and interventions.**

Despite recent advances, such as regulatory approval for new disease-modifying therapies (lecanemab and donanemab), systemic challenges persist. Over one-third of dementia cases remain undiagnosed in the UK, unpaid carers continue to bear substantial caring responsibilities, and wide inequalities persist in health, quality of life, and access to good-quality treatment and care.

This report provides a comprehensive analysis of the UK dementia research landscape in 2024, utilising open data and advanced analytical techniques. We categorise dementia research into major themes: applied therapeutic interventions and care (which receive 20% of all research funding); fundamental molecular mechanisms (24%); and diagnostic technologies including biomarkers (25%). Active dementia-related funding in 2024 totalled £131 million, heavily concentrated in a few institutions, including University College London, University of Oxford, and University of Cambridge.

Thematic analyses reveal strong specialisations among funders: the National Institute for Health and Care Research (NIHR) and the Economic and Social Research Council (ESRC) primarily support applied dementia interventions (67% and 88% of their portfolios, respectively). Diagnostic technologies attract substantial funding from the Engineering and Physical Sciences Research Council (EPSRC) and Innovate UK, while fundamental and translational mechanistic studies are predominantly funded by Alzheimer's Research UK (ARUK), the Medical Research Council (MRC) and the Biotechnology and Biological Sciences Research Council (BBSRC).

There are evident gender disparities within dementia research, especially at senior career stages and within specific research areas. Male researchers predominantly hold senior roles in biomarker and fundamental mechanistic research, whereas female researchers lead in applied interventions and dementia care research. Addressing these disparities through targeted career support and strategic funding would help to build a more equitable and sustainable research ecosystem.

Notable progress in clinical and translational research includes the regulatory approval of first-generation amyloid-targeting treatments (lecanemab and donanemab) and promising advances in accessible, affordable blood-based biomarkers, such as phosphorylated tau (p-tau217). Initiatives such as the Blood Biomarker Challenge and Dementia Trials Accelerator facilitate the rapid clinical testing and implementation of innovations, although stronger collaboration between academia and industry is needed.

However, several barriers continue to hinder research progress: funding limitations, slow translation of research into policy and practice, workforce shortages, data-sharing obstacles, and the absence of a national dementia strategy. A coordinated approach is essential, involving cross-sector collaboration, increased industry participation, dedicated funding for technology integration in dementia care, and prioritisation of prevention research. Expanding 'living labs' for real-world testing of dementia care technologies and enhancing interdisciplinary training programmes could bridge the divide between academia and industry, leading to scalable, effective innovations.

Finally, prevention research remains disproportionately underfunded, despite strong evidence suggesting that nearly half of dementia cases could be mitigated through modifiable risk factors. Increased investment and alignment with NHS priorities for preventive healthcare are necessary to fully harness this potential. By addressing these gaps and barriers, the UK can strengthen its dementia research ecosystem, and ensure that equitable, effective interventions and diagnostics reach all affected populations.

Introduction

1. Introduction

Background

Dementia is the leading cause of death in the UK [1], and a major health issue affecting around one million people in the country today. That number is projected to reach between 1.4m and 1.7m by 2040 [2, 3], an increase largely driven by the ageing population. This growing health challenge places an enormous responsibility on families, health and social care systems, and on the economy, costing the UK £42 billion in 2024 [2].

More than a third of people with dementia in the UK go undiagnosed, but the latest version of the NHS Operational Planning Guidance no longer includes a target for dementia diagnosis rates [4]. Lecanemab and donanemab, the first two treatments demonstrated to remove amyloid from the brain and modify disease progression, have been approved for use in the UK by the Medicines and Healthcare products Regulatory Agency (MHRA), although they were not recommended by the National Institute of Health and Care Excellence (NICE) for use in the National Health Service (NHS) because they were not cost-effective [5]. The social care system heavily relies on 700,000 unpaid, often overburdened carers to support people living with dementia [6], only 14% of whom report receiving any form of respite in their caring responsibilities [2].

Partly in response to these challenges, the NHS 10 Year Health Plan for England includes a commitment to develop a 'Modern Service Framework' for dementia in 2026 [7]. Despite the challenges, there are many reasons for optimism about the future of dementia research and its impact on people living with dementia and their carers. In this past year, we have seen regulatory approvals of first-generation disease-modifying therapies (DMTs), the development of blood tests that rival gold-standard diagnostics in identifying Alzheimer's pathology [8, 9], and the recognition that nearly half of the risk of developing dementia may be preventable through modifiable factors [10].

Why this mapping is needed

Against this backdrop, the value of this landscape analysis becomes clear: building a thriving research ecosystem that maximises impact for those it serves requires individuals and organisations to make informed decisions based on a comprehensive understanding of the wider research landscape. In practice, this means enabling funders, research organisations, scientists and policymakers to:

- understand current funding portfolios of funders, and respond to existing gaps
- identify whether similar research has already been conducted in the ecosystem
- recognise which researchers and organisations have particular expertise
- map how different areas of research collaborate within the system
- anticipate where technological and scientific progress is advancing, or most needed, to meet the needs of people living with dementia and their carers

- prepare early so the health and social care systems are ready to implement the latest effective and cost-effective scientific developments.

Given the size and complexity of the research field, this is a significant challenge for individuals working in the field. First, because the relevant data are often unstructured and uncategorised, it is difficult to interpret thousands of grant records, publications, and associated metadata. Second, because available data are often scattered across multiple sources or sit behind unaffordable paywalls.

Our contribution

This report on dementia research project funding, together with its sister publication analysing research outputs from UK institutions (in preparation), aims to provide a more comprehensive understanding of the dementia research landscape in the UK. It also highlights the potential that advanced analytical techniques and open data bring to support the development of effective research funding strategies. In doing so, it offers a contribution not only to dementia research in the UK, but also to the field of metascience more generally, because:

- This report relies entirely on open data sources to analyse the inputs and outputs in the system. For instance, we retrieve project funding records from multiple open Application Programming Interfaces (APIs) maintained by funding bodies, which we then combine and harmonise into a single dataset. While each funder or group of funders publishes their portfolios through their individual platforms [11, 12, 13, 14], this report presents the most comprehensive open-access compilation of dementia research projects in the UK to date.
- We enhance the data through thematic analyses, enabling us to categorise records across broad and granular scientific topics. This allows us to identify the main areas of research in the UK, and the main stakeholders within each domain.
- We combine traditional bibliometric approaches with the latest artificial intelligence technologies, to provide a novel solution to two long-standing challenges in thematic analyses: assessing the quality of the topic modelling and facilitating the interpretability of the topics.
- Finally, we have developed a framework for semi-automated, yet highly interpretable research landscape analysis. With minimal modifications, this methodology could be adapted to different time periods in dementia research, applied to subfields of dementia research with more detailed thematic classifications, or extended to entirely different research domains by changing the underlying datasets.

In **Section 2,** we describe the Methods used in this study.

We then describe the current funding landscape for dementia research in the UK in **Section 3**, showing where current investment is concentrated, which areas remain under-resourced, and how different funding bodies compare. These insights are intended to help funders coordinate their efforts, allocate resources more effectively, and identify opportunities for joint initiatives.

In **Section 4**, we present key insights from semi-structured interviews with 13 researchers and members of the funding community.

Finally, in **Section 5**, we draw out our conclusions and set out some recommendations for the dementia research community based on our findings. These recommendations are not intended as fully developed strategic proposals, but rather to demonstrate how the analytical findings can inform strategic thinking across multiple dimensions.

Despite the challenges, there are many reasons for optimism about the future of dementia research and its impact on people living with dementia and their carers.

Methods

2. Methods

Overview

To create the most comprehensive picture of UK dementia research to date, we gathered and analysed data from multiple sources. We collected information about research grants from major UK funders including government agencies and charities, using artificial intelligence tools to ensure we captured only genuinely dementia-related projects from our initial keyword searches. We then used statistical techniques to identify the main research themes emerging from these grants, complemented by an analysis of gender representation among researchers. To gain expert perspectives on current priorities and challenges, and add depth and context to our quantitative findings, we also conducted interviews with 13 key stakeholders from the research and funding communities.

This multi-faceted approach was designed to provide both a bird's-eye view of the funding landscape and detailed insights into specific research areas, ensuring our analysis captures not just the numbers but also nuanced narratives of dementia research in the UK.

Grant dataset

We used Python to retrieve grant records from the publicly available Application Programming Interfaces (APIs) from UKRI, NIHR, the European Commission, and Europe PMC (which contains grant data from major UK funders such as the Wellcome Trust and other prominent research charities). These datasets served as the starting point for our coding scripts.

We filtered each dataset to identify grants that were active at any point during calendar year 2024, and which included the words 'dementia' or 'Alzheimer's' in their titles or abstracts. We also requested data for 2024 from the two leading charities funding dementia research in the UK: ARUK and Alzheimer's Society.

To minimise the number of false positives from the keyword search, we developed a classification method using two large language models (LLMs): Anthropic's Sonnet 3.5 and OpenAI's o1-mini. We iteratively passed the title and abstract of each grant retrieved through the keyword search to the LLMs via their APIs, prompting them to determine whether each record was a true or false positive. Records identified as false positives by both models were excluded. Manual review of all exclusions confirmed the accuracy of the LLM classification. We further tested the quality of the method using the combined portfolios of the two main dementia charities, finding the models to be highly effective at identifying true dementia-related grants (Sonnet 3.5 achieved 100% recall and o1-mini 98.5%).

We identified a minimum set of columns common across the different datasets, harmonised the nomenclature, and combined the information into a unified dementia grants dataset, and a corresponding dataset of grant awardees. Table 1 depicts the data completeness rates for different key fields of information. To enhance the dataset, we calculated the proportion of each grant's funding attributable to 2024, or its active duration during that year (e.g., if a 12-month grant was active for six months in 2024, 50% of its funding was allocated to 2024).

Column name	Data completeness rate
ID	100%
Title	100%
Abstract	93%
Lay abstract	40%
Principal investigator	99%
Grant category	98%
Funder	100%
Research organisation	100%
Start date	100%
End date	100%

Table 1. Columns included in the final grant dataset and the data completeness rates.

As we describe in Section 3, the final dataset contains 1,092 dementia-related grants active in 2024, with a total annualised value of £131 million.

There are two important caveats regarding the completeness of the data retrieved from the APIs. First, as described in the funders' own platforms, the data often represent only competitive funding programmes and may exclude strategic investments, such as block grants or infrastructure grants. Second, a considerable proportion of grants listed in UKRI platform claim '0' as the funding amount. In our dementia dataset from 2024, this applies to 40% of MRC grants, 48% of BBSRC grants, and 73% of EPSRC grants. As a result, the funding figures presented in this report should be considered as a lower bound of the true investment in dementia research in the UK. Finally, the European Commission provides information on the research organisations receiving funding, but it does not provide awardee names.

Thematic analyses

Latent Dirichlet Allocation

We used Latent Dirichlet Allocation (LDA) to define the key topics within our dataset of grants and publications. LDA is a statistical model that uncovers abstract topics by analysing patterns of word co-occurrence, allowing documents to be represented as mixtures of different topics. The quality of the model is measured by a 'coherence score'. To determine the optimal number of topics for our dataset, we first performed several text-cleaning steps, including stopword removal, lemmatisation, and extreme text filtering. We then ran the model iteratively with different numbers of topics to test coherence scores. We optimised the LDA model for eight grant topics and seven publication topics, with coherence around or above 0.5 (coherence scores between 0.3 and 0.6 are considered moderate quality, but this depends on the dataset). Complete model parameters and output results can be obtained from the authors.

Given the probabilistic nature of LDA, where each document is assigned a topic probability distribution (e.g., 70% Topic 1, 25% Topic 2, 5% Topic 3), we performed two types of analyses derived from this LDA:

- Dominant topic approach: for analyses requiring definite categorisation, we applied a 40% probability threshold. Any topic that exceeded this threshold was considered the dominant topic of the document. Consequently, some grants had no dominant topic, and others had two dominant topics. We iteratively adjusted the threshold to ensure that the proportion of documents without a well-defined dominant topic was between 15% and 20% of the dataset.
- Weighted topic calculation: for analyses aiming to capture the total contribution of each topic to the landscape, we first excluded any topics with probabilities below 10% from each document (i.e., considering them as noise in the topic allocation). We then normalised the remaining probabilities to 100%, and weighted the measures accordingly (e.g., if a grant was 50% Topic 1 and 50% Topic 2, we divided the funding equally between those two topics).

Furthermore, we took steps to address two key issues that often affect the usefulness of LDA analyses: assessing the quality of topic allocation beyond coherence scores and improving topic interpretability to produce meaningful scientific descriptions of each topic.

Vector embeddings to test quality of topic allocation

We used OpenAI's text-embedding-3-small model to convert the combined titles and abstracts of grants and publications into mathematical vectors – sequences of 1,536 numbers that capture the meaning of the text in mathematical form. This allowed us to assess the similarity between research documents.

We then applied t-SNE (t-distributed Stochastic Neighbor Embedding) to the vector embeddings, a dimensionality reduction technique effective at visualising high-dimensional data in 2D or 3D space. t-SNE focuses on preserving local relationships between points, making it especially useful for revealing clusters and structure in the

data. We used t-SNE to generate a 2D visualisation of the grants and publications data and overlaid the dominant topic information obtained from the LDA model (Figure 1). This approach served as a simple, visual validation of the topic allocation: documents with the same dominant topic should cluster together in line with the clusters of documents identified by t-SNE, which are derived from their scientific meaning captured by the embeddings. The code used to embed the dataset and generate the t-SNE coordinates can be obtained from the authors.

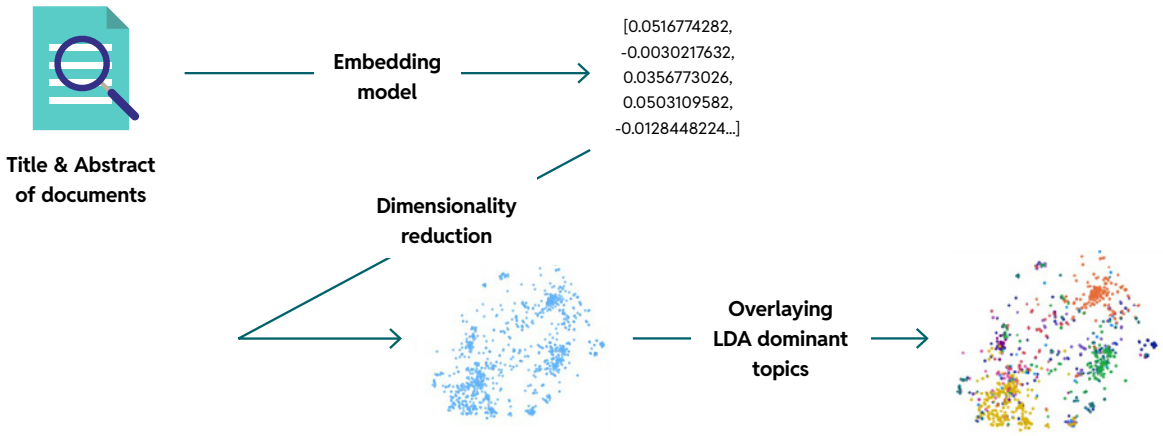

Figure 1: Schematic representation of the document analysis pipeline. Titles and abstracts are first processed through an embedding model to generate high-dimensional vectors. These embeddings are then reduced in dimensionality for visualisation purposes, followed by the overlaying of topics derived from the Latent Dirichlet Allocation (LDA) topic modelling.

Large language models to improve topic interpretability

We created a subset our grants dataset by filtering documents assigned topics with probabilities of 70% or higher. This filtering process yielded a corpus of documents with high-confidence topic assignments derived from the LDA model.

Subsequently, we conducted random sampling within each topic, selecting either 20% of documents or a minimum of 30 documents per topic, whichever was greater. We then concatenated the titles and abstracts from these sampled documents and processed them using Anthropic's Sonnet 3.5 language model API. The model was prompted to generate two outputs per topic: a topic title reflecting the scientific content, and a detailed description of the research encompassed within each LDA-derived topic (Figure 2). This approach helped us translate statistically derived LDA 20% of documents or a minimum of 30 documents per topic, whichever was greater. We then concatenated the titles and abstracts from these sampled documents and processed them using Anthropic's Sonnet 3.5 language model API. The model was prompted to generate two outputs per topic: a topic title reflecting the scientific content, and a detailed description of the research encompassed within each LDA-derived topic (Figure 2). This approach helped us translate statistically derived LDA topics into interpretable scientific domains. The code for this process can be obtained from the authors.

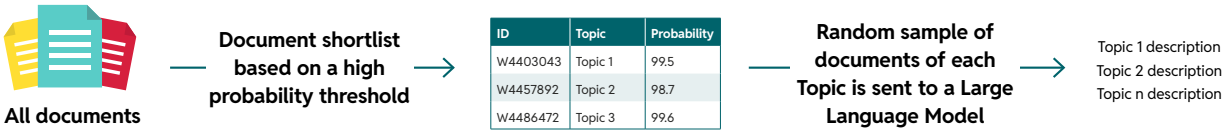

Figure 2: Document filtering and topic labelling workflow.

Gender analysis

We conducted a gender analysis of the researchers listed in our grant dataset using the **www.genderize.io** API, which provides probabilistic gender assignments based on first names, derived from a large global database containing hundreds of millions of names. Using Python scripts, we iteratively queried the API with each researcher's first name to retrieve both the assigned gender (male/female) and a confidence score indicating the likelihood that the assignment was correct. Consistent with standard practices in bibliometric gender analyses, we applied a confidence threshold of ≥90% to ensure robust gender assignment. Only researchers whose names exceeded this threshold were included in the final analysis. The resulting gender-labelled datasets were then integrated with the grant and publication data to quantify gender differences across roles, topics, and funders, as presented in this report.

Interviews

To complement the quantitative analysis of funding and publication data, we conducted semi-structured interviews with 13 individuals active in the UK dementia research ecosystem, including researchers and members of the funding community. Interview questions were shared in advance. Interviews lasted between 30 and 60 minutes and were conducted online.

The purpose of the interviews was to get insights into recent developments, ongoing initiatives, and challenges within the field in 2024.

Dementia research funding

3. Dementia research funding

What types of dementia research are being funded in the UK?

This analysis includes 1,092 grants, with a combined annualised value of £131 million for the year 2024. As described in the Methods section, publicly available data often reflect only competitive funding programmes and may exclude other important components such as: infrastructure grants, including those supporting some National Institute for Health and Care Research (NIHR) networks; and intramural funding, such as funding allocation within the UK Dementia Research Institute (UK DRI), which reported a total expenditure of £43.3 million in the year 2023/2024, of which £25.3 million came from the Medical Research Council (MRC). Furthermore, some UK Research and Innovation (UKRI) councils do not currently disclose funding information for all projects included in their repositories. During the course of this study, we were informed that further information will be available through public funders' open APIs in the future. Subsequent iterations of this study could therefore provide a more comprehensive view of the UK dementia research funding landscape.

The thematic analysis and semi-automated large language model classification uncovered several major areas of dementia research in the UK, set out in Table 2:

- **Fundamental and early translational mechanistic investigations:**
    - **Topic 5:** Molecular mechanisms of protein aggregation (247 grants, £20.58 million) and Topic 3: Neuroinflammatory mechanisms and therapeutic targets (47 grants, £6.31 million). Together, they account for 24% of the funding.
- **Research on diagnostic technologies and development of novel biomarker modalities:**
    - **Topic 7**: Advanced imaging and biomarker technologies (78 grants, £16.50 million) and Topic 8: Neuroimaging analysis and deep learning applications (130 grants, £11.13 million). Together, they account for 25% of the funding.
- **Applied studies:**
    - **Topic 1:** Therapeutic interventions and support for people with dementia and carers (166 grants, £22.65 million) and representing 20% of the funding.
- A further group of grants had no dominant topic or multiple dominant topics, together representing 17% of the funding. This category suggests support for interdisciplinary research that does not fit under any of the well-defined themes.

Dominant Topic	Topic Title	Grants	2024 Funding (£)	% of 2024 Funding
Topic 5	molecular mechanisms of protein aggregation and degradation in neurodegeneration	247	20,584,022	18.3%
Topic 1	therapeutic interventions and support for people with dementia and carers	166	22,650,973	20.2%
Topic 8	neuroimaging analysis and deep learning applications in dementia diagnosis	130	11,134,176	9.9%
No dominant topic	-	102	13,239,890	11.9%
Topic 7	advanced imaging technologies and biomarkers for neurodegenerative disease detection	78	16,500,547	14.7%
Topic 4	neural mechanisms and cognitive processing in sleep, memory, and spatial navigation	68	5,888,484	5.2%
Multiple dominant topics	-	66	6,083,611	5.4%
Topic 6	cardiovascular and environmental risk factors in dementia: mechanistic pathways and prevention	56	6,098,109	5.4%
Topic 3	neuroinflammatory mechanisms and therapeutic targets in neurodegenerative disease	47	6,312,715	5.6%
Topic 2	environmental and vascular factors in blood-brain barrier dysfunction and neurodegeneration	35	3,756,655	3.3%

Table 2: Distribution of research grants and funding across major dementia research topics in the UK in 2024. The thematic analysis generated eight distinct research areas and two additional categories (No dominant topic and Multiple dominant topics).

Below is an example of a description produced by our semi-automated process, lightly edited for greater clarity:

Topic 1: Therapeutic interventions and support for people with dementia and carers

> *"This topic encompasses research focused on developing and evaluating therapeutic interventions and support programmes for people living with dementia and their carers. The research spans a range of interventions including music therapy, virtual reality singing groups, conversation training, and personalised care approaches.*
>
> *A key theme is the co-production and adaptation of interventions with stakeholders, including people with dementia, family carers, and healthcare professionals. The studies aim to improve quality of life, communication, social engagement and wellbeing through various modalities.*
>
> *There is particular attention to addressing inequalities in access to support, with several projects focusing on underserved populations such as ethnic minority communities.*
>
> *The research employs diverse methodologies including randomised controlled trials, qualitative interviews, conversation analysis, and ethnographic approaches to evaluate intervention effectiveness and implementation. Many projects incorporate economic evaluations to assess cost-effectiveness and sustainability within healthcare systems.*
>
> *The overall goal is to develop evidence-based, person-centred interventions that can be feasibly delivered and scaled up to support people with dementia and their carers across different settings and stages of the condition."*

We used several machine learning techniques, including Latent Dirichlet Allocation (LDA), to identify and refine the main topics within our dataset. To validate this approach, we created a visual map (Figure 3), in which each grant is represented as a dot, with similar grants appearing closer together. Overlaying our topic classifications onto this map revealed clear patterns. Topic 1 and Topic 5 – the two largest topic groups – formed distinct clusters in the upper and lower regions of the map, respectively. Other topics also showed varying degrees of clustering: Topic 2 was concentrated on the left side, Topic 8 mainly appeared on the right (partially overlapping with the more scattered Topic 7), and Topic 3 formed a cluster near Topic 5. As expected, grants labelled as having 'No dominant topic' or 'Multiple dominant topics' were distributed across the entire map, though with a greater concentration in the lower half of the map.

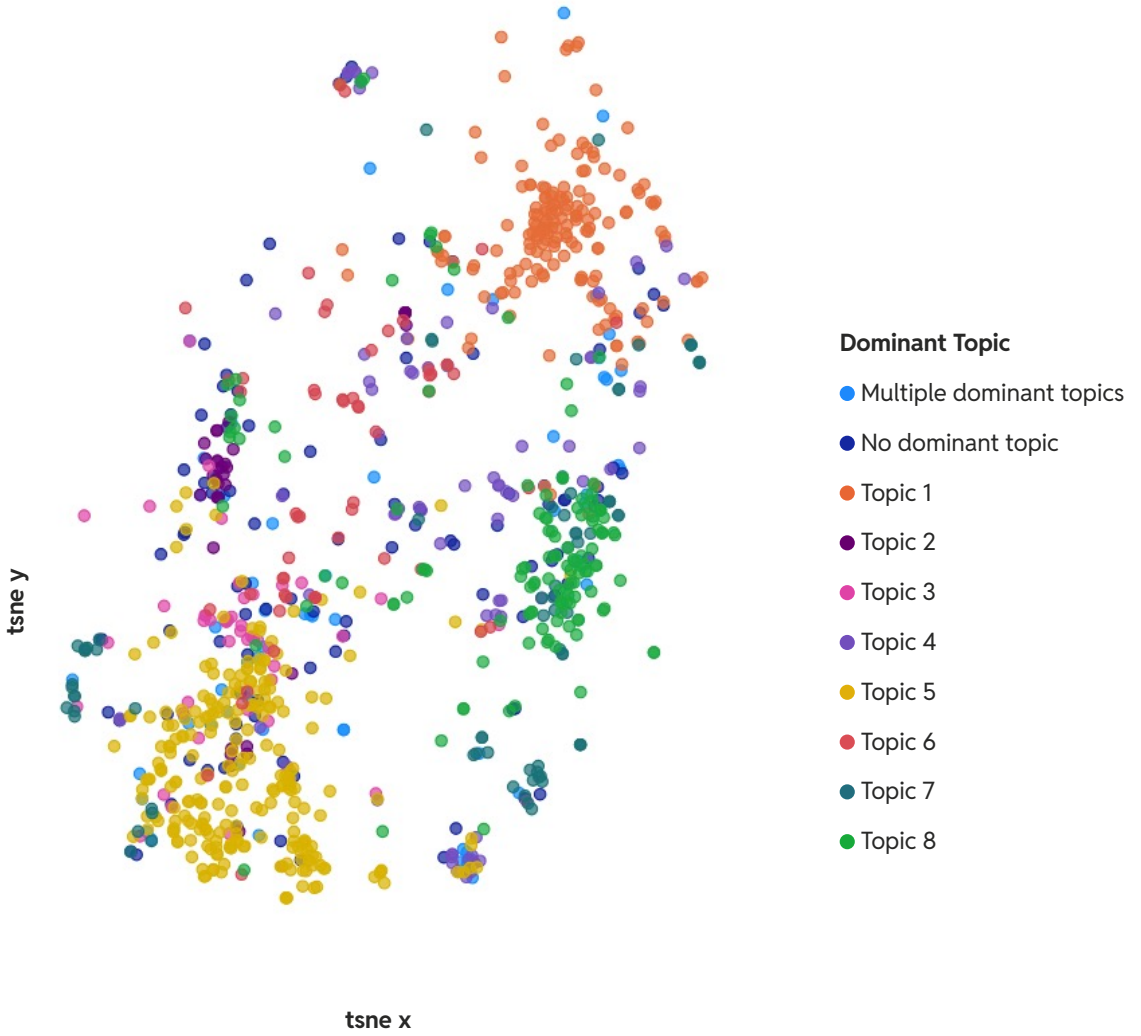

Figure 3: t-distributed stochastic neighbor embedding (t-SNE) visualisation of topic distributions across grant documents. The scatter plot shows a two-dimensional projection of document embeddings, with each point representing a document and colour-coded according to its dominant topic (Topics 1-8). Documents with multiple dominant topics or without a clear dominant topic are specifically marked.

For the most common topics, we increased the granularity of the analysis by conducting sub-topic analysis through the same approach (Tables 3 and 4).

Topic 1 sub-topic title	% of grants	% of funding
Smart home technologies and digital solutions for dementia care	39	23
Post-diagnostic support and care transitions for people with dementia and their families	35	58
Community-based dementia support and social inclusion	16	11
Clinical trials of cognitive and neuropsychiatric interventions for dementia	11	8

Table 3: Distribution of grants and funding across sub-topics within Topic 1: Therapeutic interventions and support for people with dementia and carers

Topic 5 sub-topic title	% of grants	% of funding
Organoid and in vitro models of neurodegeneration	38	53
Molecular mechanisms and genetic risk factors in Alzheimer's disease	31	17
Molecular mechanisms of protein aggregation and proteostasis in neurodegenerative disease	20	21
Molecular mechanisms and pathology of TAR DNA-binding protein 43 (TDP-43) in frontotemporal dementia and amyotrophic lateral sclerosis (ALS)	10	8

Table 4: Distribution of grants and funding across sub-topics within Topic 5: Molecular mechanisms of protein aggregation

We provide below an example of a sub-topic description produced by our semi-automated process:

Topic 5 Sub-topic 1: Organoid and in vitro models of neurodegeneration

> *"This topic focuses on the development and application of advanced in vitro models, particularly organoids and slice cultures, to study neurodegenerative disease mechanisms. The research emphasises creating complex multicellular systems that better replicate human brain tissue compared to traditional cell culture methods.*
>
> *These models are used to investigate key pathological processes in conditions like Alzheimer's disease and amyotrophic lateral sclerosis/frontotemporal dementia (ALS/FTD), including amyloid-beta accumulation, tau pathology, and neuroinflammation. A major advantage of these systems is the ability to incorporate multiple cell types (neurons, microglia, astrocytes) and study their interactions in a controlled environment.*
>
> *The models frequently utilise patient-derived induced pluripotent stem cells (iPSCs) and genetic modifications to examine disease-relevant mutations. Researchers use these platforms to understand how risk factors like apolipoprotein E (Apo-E) variants affect cellular function, test potential therapeutic interventions, and bridge the gap between simple cell culture and in vivo studies.*
>
> *The work aims to provide more physiologically relevant systems for studying disease mechanisms and screening therapeutic compounds while reducing reliance on animal models."*

Funders in the UK ecosystem

The total funding active for the year 2024, broken down by funding organisation, is shown in Table 5. As mentioned earlier, these figures should be considered as minimum estimates, particularly for public funders, as their APIs often exclude strategic investments and infrastructure funding. Furthermore, some of the projects lack funding information altogether (or are listed with a value of £0). We included only research projects that were active at any point during 2024, and allocated funding proportionally. As a result, some awards announced in 2024 but scheduled to start in 2025 were not included in the report for 2024 (e.g., two of the three newly funded Alzheimer's Society Doctoral Training Centres).

Funder	Grants	2024 funding (£)
Medical Research Council (MRC)	204	30,252,866
Alzheimer's Research UK (ARUK)	204	20,966,908
National Institute for Health and Care Research (NIHR)	90	19,529,170
Wellcome Trust	32	9,595,850
UK Research and Innovation (UKRI)	61	9,089,066
Alzheimer's Society	135	7,926,556
Innovate UK (IUK)	28	7,068,796
Biotechnology and Biological Sciences Research Council (BBSRC)	90	6,906,320
Engineering and Physical Sciences Research Council (EPSRC)	113	5,456,368
Economic and Social Research Council (ESRC)	37	4,195,165
Horizon Europe Guarantee (Department for Science, Innovation & Technology)	26	3,835,323
European Commission	16	2,775,509
Alzheimer's Society, ARUK, NIHR, Gates Ventures|	2	1,169,067
Arts and Humanities Research Council (AHRC)	8	531,802
The Dunhill Medical Trust	8	427,819
The Academy of Medical Sciences	15	401,705
British Heart Foundation	3	333,059
Health and Care Research Wales	3	285,097
National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs)	6	148,720

Table 5: Distribution of research funding across major UK and European funding bodies in 2024

The distribution of topics across different funding bodies further validates our classification system. Each funder's portfolio reflects a focus on areas aligned with their established strategic priorities (Table 6). Among the major funders, the MRC, UKRI special initiatives (such as Future Leaders Fellowships and the Industrial Strategy Challenge Fund), and the Alzheimer's Society maintain the most diverse research portfolios. Other funders show a more specialised focus. For example, both NIHR and ESRC predominantly focus on therapeutic interventions and dementia care (Topic 1), comprising 67% and 88% of their respective portfolios. Alzheimer's Research UK (ARUK) dedicates 42% of its funding to neuroinflammatory mechanisms and therapeutic targets (Topic 3), reflecting its commitment to drug discovery institutes across London, Oxford, and Cambridge. The Biotechnology and Biological Sciences Research Council (BBSRC) and Wellcome Trust prioritise molecular mechanisms research (Topic 5), allocating 50% and 39% of their funding, respectively. Technology-focused funders show different priorities: the Engineering and Physical Sciences Research Council (EPSRC) and Innovate UK (IUK) concentrate on advanced imaging and biomarkers (Topic 7), accounting for 57% and 41% of their funding, respectively. In addition, IUK invests significantly in neuroimaging and deep learning (Topic 8), which represents 23% of its portfolio.

Funder Harmonised	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	Topic 7	Topic 8
Alzheimer's Research UK	3.3%	6.0%	41.9%	4.8%	16.3%	7.9%	11.9%	7.8%
Alzheimer's Society	25.5%	7.9%	6.0%	4.7%	20.5%	4.7%	4.7%	18.1%
BBSRC	0.8%	3.0%	13.0%	18.6%	50.3%	7.2%	6.3%	0.8%
EPSRC	8.1%	0.4%	3.6%	7.2%	10.7%	1.7%	57.2%	11.2%
ESRC	87.9%	0.0%	11.0%	12.8%	1.6%	0.0%	1.9%	0.8%
Innovate UK	8.1%	0.0%	11.0%	12.8%	1.6%	0.0%	41.4%	23.3%
MRC	3.5%	3.9%	20.3%	9.9%	23.2%	11.4%	18.2%	9.4%
NIHR	67.0%	0.8%	0.5%	6.1%	2.9%	6.5%	6.5%	15.7%
UKRI	10.3%	12.9%	10.7%	10.7%	15.9%	6.7%	28.0%	6.9%
Wellcome Trust	-	10.3%	6.1%	10.5%	38.7%	12.7%	6.0%	15.7%

Table 6: Distribution of research funding across eight research topics by major UK funding organisations. The table presents the percentage breakdown of each funder's portfolio by research area.

The specific research interests of each funder are also visualised through the 2D map of research grants (Figure 4). This visual analysis helps to quickly identify potential opportunities for collaboration or areas of overlap. The map reveals clear spatial patterns in funding priorities: NIHR and ESRC grants cluster predominantly in the upper region, although NIHR also has a presence in the diagnostic research cluster on the right-hand side. This diagnostic cluster also contains the majority of EPSRC and IUK grants. ARUK and BBSRC grants concentrate in the lower regions of the map. Reflecting their broader funding strategies, MRC and Alzheimer's Society grants are distributed more evenly across all regions of the map.

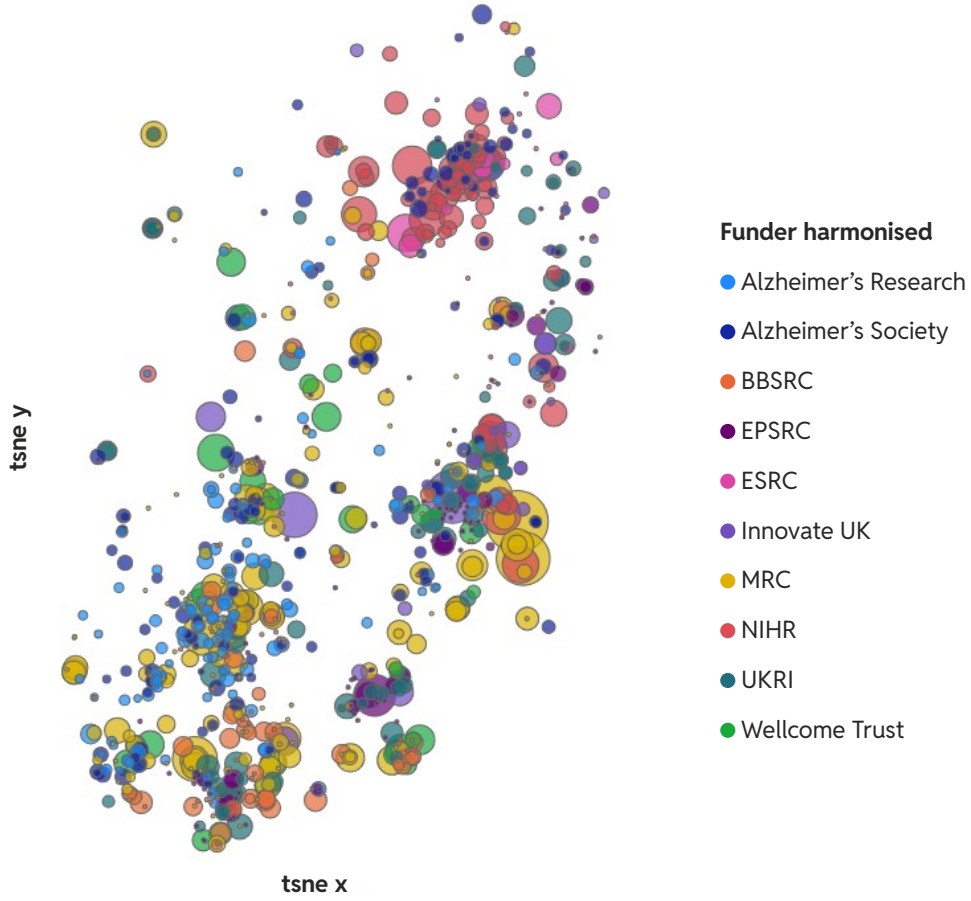

Figure 4: Visualisation of research funding distribution across major UK healthcare and research organisations using t-SNE dimensionality reduction. Each point represents a funded project, coloured by funding organisation and scaled by funding amount. The distinct clustering patterns suggest areas of specialised focus.

Research organisations

A similar analysis can be conducted at the research organisation level (Table 7). In 2024, University College London received by far the highest amount of active funding (£23.88 million), followed by the University of Oxford (£12.65 million) and the University of Cambridge (£11.26 million). There is a clear concentration of dementia research funding in what is sometimes referred to as the 'golden triangle', with the next highest funded universities being Imperial College London (£5.52 million) and King's College London (£4.48 million). Next come Newcastle University (£3.84 million) and the University of Edinburgh (£3.80 million).

Research Organisation	2024 funding (£)
University College London	23,881,255
University of Oxford	12,651,211
University of Cambridge	11,263,535
Imperial College London	5,524,834
King's College London	4,484,498
Newcastle University	3,837,626
University of Edinburgh	3,796,167
University of Exeter	3,650,067
University of Sheffield	3,561,861
University of Bristol	3,098,758
University of Manchester	2,804,297
Cardiff University	2,427,816
Queen Mary University of London	2,357,059
Cerca Magnetics Limited	1,919,714
University of Southampton	1,438,511

Table 7: Distribution of research funding across the top 15 UK research institutions by funding amount in 2024.

The breadth of research focus varies significantly across organisations (Table 8). Some institutions demonstrate considerable diversity: Newcastle University leads with funding across six major topics, followed by Cardiff University, University of Manchester, University of Edinburgh, University of Nottingham, and University College London, each spanning five major topics. In contrast, other organisations maintain more specialised portfolios: NHS Norfolk and Waveney Integrated Care Board allocates 93% of its funding to therapeutic interventions and dementia care (Topic 1), the University of Stirling shows a similar concentration, with 90% directed to the same area. The University of Sussex and the University of Leeds focus predominantly on single areas, with 55% of their funding dedicated to Topics 1 and 5, respectively.

Funder Harmonised	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6	Topic 7	Topic 8
Cardiff University	16%	11%	14%	7%	27%	13%	8%	4%
Cerca Magnetics Limited	-	-	-	16%	-	-	55%	29%
Imperial College London	2%	7%	5%	2%	16%	6%	33%	12%
Kings College London	13%	5%	12%	6%	39%	6%	8%	10%
Newcastle University	11%	4%	20%	11%	11%	6%	13%	15%
Queen Mary University of London	3%	0%	11%	17%	14%	6%	0%	28%
University College London	10%	3%	20%	9%	25%	10%	10%	12%
University of Bristol	1%	9%	5%	2%	52%	12%	12%	3%
University of Cambridge	3%	2%	34%	10%	14%	6%	15%	17%
University of Edinburgh	10%	10%	19%	9%	14%	24%	14%	5%
University of Exeter	24%	1%	3%	4%	25%	25%	7%	12%
University of Leeds	7%	2%	15%	2%	53%	2%	15%	2%
University of Manchester	7%	3%	26%	7%	15%	8%	25%	14%
University of Oxford	27%	5%	12%	7%	30%	4%	8%	7%
University of Sheffield	27%	5%	12%	7%	30%	4%	8%	7%
University of Southampton	41%	2%	14%	0%	16%	2%	17%	9%

Table 8: Distribution of the research funding across eight research topics by major UK research institutions. The table presents the percentage breakdown of each organisation's dementia research portfolio.

Funders vary significantly in how they allocate funding across organisations. At one end of the spectrum, the MRC concentrates its funding heavily; although it awards over 200 project grants, these are distributed across just 26 organisations, with three universities (University College London, University of Cambridge, and University of Oxford) receiving 65% of the total funding. ARUK shows a similar concentration at the top, with the same three universities receiving 51% of its funding, but it spreads its remaining funding more widely across 49 institutions. In contrast, NIHR shows the broadest distribution, with its top three funded organisations accounting for only 16.2% of its total funding.

Patterns of research funding within a funder's portfolio may also reflect a combination of specific funding priorities and areas of expertise of the host institution. For instance, the University of Sheffield and Imperial College London appear in EPSRC's portfolio at rates two and three times higher, respectively, than in the overall body of grants. Similarly, the University of Southampton and University of Sussex are three and four times more prevalent in BBSRC's portfolio. Newcastle University and the University of Exeter are each about twice as likely to receive funding from ARUK and Alzheimer's Society compared to other funders.

Gender differences in UK funding

A total of 1,960 researchers were named across this grant dataset in a variety of labelled roles (e.g., Principal Investigator, Co-Investigator, Fellow, PhD supervisor, PhD student, and the more generic Award Holder). As described in Section 2, we performed a gender analysis using an online API connected to a global database containing hundreds of millions of names. The platform assigns a 'degree of confidence' in their gender prediction to each individual name. Of the 1,960 entries, 93% were included in the analysis, as they met the 90% degree of confidence threshold used in similar studies.

The analysis showed that 55% of the awards and 66% of the funding were allocated to researchers labelled as male. We found striking differences in dementia research funding distribution based on two key factors: the seniority or role of the applicant within the grant scheme, and the type of research conducted. For example, 59% of Principal Investigators, 58% of PhD supervisors, and 56% of Co-Investigators in 2024 were labelled as male. On the other hand, 59% of PhD students and 53% of Fellows were labelled as female.

Furthermore, grants focused on therapeutic interventions and support for people with dementia and their carers (Topic 1) were led by researchers labelled as female in 60% of cases. Similarly, research on environmental risk factors and prevention (Topic 6) was led by researchers labelled as female 58% of the time. In contrast, several other topics were predominantly led by researchers labelled as male; for example, neuroimaging analysis and deep learning applications (Topic 8, 65% labelled as male) and advanced imaging and biomarker technologies (Topic 7, 59%).

Given what we described earlier, it is not unexpected that topic-based gender differences are reflected in the distribution of funding from different funding bodies. In 2024, UKRI and its councils awarded more than half of the active grants to researchers labelled as male (broad UKRI calls 65%, BBSRC 63%, MRC 61%, EPSRC 60%). Similarly, the Wellcome Trust, which supports research in comparable areas, awarded 77% of its grants to male researchers. In comparison, the ESRC awarded 72% of its grants to researchers labelled as female, and the equivalent proportions were 54% for NIHR, 53% for ARUK and 51% for the Alzheimer's Society.

1. A total of £131 million was invested in active dementia research projects in the UK in 2024, primarily allocated across three major areas: fundamental mechanistic studies (24%), diagnostic technologies (25%), and applied therapeutic interventions (20%).
2. The funding landscape is highly concentrated, with University College London, University of Oxford, and University of Cambridge receiving the majority of funding, particularly from major funders such as the MRC.
3. Research funding patterns reveal distinct specialisations among funders: NIHR and ESRC focus on therapeutic interventions and dementia, while EPSRC and Innovate UK prioritise imaging and biomarker development. MRC and Alzheimer's Society support the most diverse portfolios.
4. There are distinct gender differences in who conducts research and receives funding, influenced both by career stage (researchers labelled as male dominate senior positions, while researchers labelled as female are more frequently found in early career roles), and by research topic.

Box 1. Key findings from the dementia research landscape

Interviews

4. Interviews

We interviewed 13 individuals – dementia researchers and members of bodies that fund dementia research – to get their views on developments, ongoing initiatives, and challenges facing the field in 2024.[1]

Research highlights

Interviewees frequently mentioned the influence of the 2024 update of the Lancet Commission on *Dementia prevention, intervention, and care* Commission on public perception, clinical guidelines and policy changes. Interviewees were enthusiastic about the Commission's finding that nearly half of dementia cases could potentially be prevented or delayed by addressing modifiable risk factors. Several participants expressed a wish for the field to place a greater emphasis on prevention and public education, rather than on developing novel pharmaceuticals. Interestingly, a frequent topic of discussion was the potential impact of a novel type of pharmaceuticals, GLP-1 agonists such as Ozempic, on dementia prevalence, due to their beneficial effects on several of the known modifiable risk factors. There was broad agreement that the Commission should serve as a guiding framework for future research. However, several interviewees emphasised the ongoing need to translate these findings into effective, real-world interventions.

The ongoing validation of blood-based biomarkers was frequently highlighted as a major area of progress in 2024. There was widespread consensus among interviewees that the advent of blood tests for Alzheimer's disease and other dementias represents a significant milestone. Several interviewees mentioned the biomarker p-tau 217 and its potential to make diagnosis more accessible and cost-effective compared to traditional methods, such as cerebrospinal fluid (CSF) analysis and positron emission tomography (PET) imaging. One interviewee specifically noted that 2024 saw the emergence of a novel technology called NULISA, which can measure panels of multiple biomarkers at lower concentrations than previously possible. It is likely that, in the future, a single test will be able simultaneously to measure multiple distinct pathological changes in the brain, not only improving the quality of diagnosis but also paving the way for personalised medicine, as new treatments targeting proteins beyond amyloid enter the market.

Several interviewees mentioned the MHRA licensing of the new DMTs donanemab and lecanemab as an important milestone, though they expressed measured optimism. While these approvals indicate regulatory agreement that targeting amyloid can impact disease progression, interviewees acknowledged limitations, including high costs, side-effects, and the need for early diagnosis. Several interviewees described these developments as incremental progress towards more effective treatments

1 We would like to thank all interviewees who contributed to this project: Ana Antunes (UK Dementia Research Institute), Byron Creese (Brunel University), Lucy Devendra (Alzheimer's Society), Clarissa Giebel (University of Liverpool), Amanda Heslegrave (University College London), Michael Hornberger (University of East Anglia), Michael Jones (Alzheimer's Research UK), Tara Spires Jones (University of Edinburgh), Gill Livingston (University College London), Paresh Malhotra (Imperial College), Robyn Polisano (NIHR), Petroula Proitsi (Queen Mary University of London) and Adam Smith (University College London).

rather than the revolutionary breakthroughs often portrayed in the media. Some interviewees expressed disappointment, but not surprise, that these new treatments did not receive a positive recommendation from NICE for use in the NHS. Some raised concerns that this decision may increase existing health inequalities. On the topic of drug development, some interviewees were optimistic about a renewed interest from academia and industry in symptomatic treatments, particularly those targeting neuropsychiatric symptoms of dementia.

A few interviewees highlighted advances in fundamental research that produced important insights into the underlying disease mechanisms. For example, studies on the glymphatic system have improved our understanding of the relationship between sleep and dementia, particularly the role of sleep in clearing toxic proteins from the brain. Also, recent findings on the trans-synaptic spread of tau protein offer valuable insights into disease progression and potential therapeutic targets.

Key initiatives

When discussing key initiatives and programmes of work in 2024, multiple interviewees mentioned the Blood Biomarker Challenge, a collaborative initiative involving ARUK, the Alzheimer's Society and the NIHR. This programme aims to demonstrate the utility and cost-effectiveness of blood tests in real-world clinical settings, with the potential to transform early detection and diagnosis of dementia in the UK.

The establishment of two new NIHR Policy Research Units (PRUs), led from the University of Exeter and Queen Mary University of London, was mentioned as a significant development. These units are designed to harness existing evidence and generate new insights that directly inform policy making, NHS operations and social care. In addition, two interviewees discussed the Alzheimer's Society's investment in doctoral training centres, another substantial initiative focused on building research capacity in areas with significant knowledge gaps. These centres will focus on understudied areas such as vascular and immune contributions to dementia, Lewy body dementia, and integrated care approaches.

Some interviewees discussed technology integration in care delivery as examples of positive partnerships among leading public funders, aiming to develop technologies that enable people with dementia to live independently. With a similar goal of improving dementia and ageing care, one interviewee highlighted the North West Coast (NWC) Living Lab in Ageing & Dementia, launched in 2024. This 'living lab' model embeds researchers within social care settings and care homes to ensure that research remains grounded in real-world care contexts.

Several interviewees discussed progress in the clinical trials space aimed to address concerns raised by the O'Shaughnessy review of commercial clinical trials in the UK [15]. For example, the NIHR Dementia Trials Network was highlighted as an important novel initiative, designed to accelerate early-phase trials and increase patient access to trials across the UK. The Dementia Trials Accelerator, a partnership between the UK DRI and Health Data Research UK, which aims to increase participation in late-stage clinical

trials, was also discussed. The Accelerator is part of the Dementia Goals Programme (formerly Dementia Mission), also mentioned by some interviewees. Overall, there was optimism about the potential of a more coordinated strategy to improve diagnosis and clinical trials for people with dementia in the UK.

These initiatives, all of which were launched or gained significant momentum in 2024, aim to address challenges ranging from fundamental science to care delivery, and demonstrate how active and dynamic the field of dementia research is in the UK.

Barriers to progress

Interviewees identified several barriers that continue to impede progress in dementia research in the UK.

Funding limitations emerged as a persistent concern. Interviewees emphasised chronic under-investment relative to the scale and impact of dementia. Some researchers outside the UK DRI raised concern about the concentration of funding, suggesting that the Institute's substantial allocation may limit opportunities for other researchers and institutions. Translating research findings into practice remains another significant challenge. Interviewees described a significant gap between research discoveries and their implementation in social care and policy contexts. This disconnect is further exacerbated by difficulties in demonstrating the impact of applied health and social care research, particularly given resource constraints faced by local authorities. The challenge extends to effectively curating and translating available evidence in ways that are both timely and actionable for policymakers.

Workforce limitations pose serious constraints across the research ecosystem. Interviewees noted significant workforce shortages, including insufficient magnetic resonance imaging (MRI) and infusion capacity needed for administering biological therapies. The field faces increasing difficulties in recruiting and retaining clinical academics. Additionally, there is concern about the migration of talent from universities to industry, which could deplete the academic research talent pool.

Data access and sharing emerged as a critical bottleneck in several interviews. Researchers face numerous barriers to accessing data, even when it should be readily available. Industry reluctance to share trial data limits the broader research community's ability to fully utilise available knowledge. University researchers also reported delays in data access compared to their industry counterparts, creating a competitive disadvantage.

From a policy perspective, the absence of a national dementia strategy in England was mentioned by some interviewees as an impediment to research impact and effective implementation, as was the delay in addressing long-standing funding and provision challenges in social care.

Diversity and inclusion challenges persist throughout the research landscape. Interviewees highlighted the underrepresentation of certain ethnic groups in studies and the need for more diverse datasets. Disparities in diagnosis and access to care disproportionately affect individuals from lower socioeconomic backgrounds and those

with rarer dementia subtypes. A recurring concern expressed by interviewees was the risk of widening health inequalities, especially as DMTs and blood biomarker tests are initially available only through private clinics, creating a two-tier system that excludes those unable to afford private care.

Geographical disparities also emerged as a significant issue, with access to specialist expertise and clinical trials varying considerably across regions. This variation extends beyond treatment access to research participation opportunities, further limiting the diversity and the generalisability of research findings.

Finally, the need for gender-specific research, particularly regarding women's health issues such as menopause and hormone replacement therapy, was highlighted as an important but underexplored area.

Looking ahead to 2025

Despite the challenges, the interviews with leading researchers and funders revealed significant optimism about the developments expected to shape dementia research in 2025.

Many expressed the view that 2025 will continue to be the year of blood biomarkers, with some predicting the introduction of blood tests in some parts of the health system. The expansion of clinical trial infrastructure emerged as a dominant theme, with researchers anticipating significant progress in recruitment for exemplary trial programmes by year-end. Several interviewees mentioned their hope for the continued development of clinical research networks, with increasing integration across academic institutions, healthcare providers, and industry partners. This expansion aims to enhance translational capabilities and accelerate the implementation of research findings into clinical practice. One researcher noted the upcoming establishment of platform trials for Alzheimer's disease, building on successful models from cancer and other neurodegenerative conditions

In addition, some researchers discussed that they expect to see continued progress in drug development and delivery, especially in addressing challenges related to the blood-brain barrier. Regulatory frameworks and accessibility planning for DMTs were also anticipated to receive increased attention this year.

Conclusions & Recommendatioins

5. Conclusion and recommendations

Enhancing data transparency

To our knowledge, this is the most comprehensive compilation of dementia research funding in the UK to date. It was made possible by the availability of open data from funders' repositories. We hope it serves as an example of what can be achieved when data are widely shared and used to build a detailed picture of the research landscape.

Although wide-ranging, important data gaps remain:

- Several public funders do not include infrastructure funding in their open repositories.
- Some UKRI councils have high rates of missing funding information. While the available data reveal the number of projects within their portfolios, large variation in grant sizes means that our total funding estimates may vary due to missing information.
- Some of the leading organisations in the research landscape do not openly share their project or intramural funding data in any repository, resulting in a lack of transparency for the rest of the field.

We encourage the leading organisations to commit to open sharing of their portfolios. This does not require significant resources or coordination, as data retrieval and harmonisation processes can be handled by any interested users. Greater transparency would ensure that analyses like the one presented in this report provide an accurate reflection of the field.

Building on UK strengths in diagnostic innovation

The thematic and bibliometric analyses in this report and in the accompanying sister publication (under preparation) show some of the latest trends in dementia diagnostics, including mobile imaging technologies, digital biomarkers, and blood tests for Alzheimer's and other dementias. They are among the most dynamic areas of research producing newer knowledge, and, although not shown in this report, represent some of the fastest-growing domains in recent years. As will be shown and discussed in the complementary publication, they also show some of the lowest levels of UK leadership, largely due to exceptionally high rates of international collaboration rates.

Plasma biomarkers are essential to both present and future diagnostic advances. Currently, data are being collected in clinical trials to facilitate the widescale implementation of blood tests in the NHS, as novel biomarkers are being discovered, and new assays are being developed. The pipeline will continue to grow and, from a UK patient benefit perspective, it is essential to ensure early access to the latest diagnostic assays and platforms, secure buy-in from the clinical community responsible for administering these tests and generate UK-specific implementation data for rapid NHS adoption. This would help considerably to improve dementia diagnosis rates across the UK.

The results from our analysis, combined with recent developments, raise questions about the UK's position within the international research community. For instance, major international efforts studying low-burden biomarkers in clinical settings (e.g., Bio-Hermes-001, AD-RIDDLE, and the upcoming Bio-Hermes-002) have seen minimal UK participation. Furthermore, while the publication analysis showed a distinct theme of plasma biomarkers, the grant analysis did not reflect this, indicating a low volume of funding in the area (only 28 active grants in 2024 contained the word "plasma" in the title or abstract).

There are still many reasons for optimism. The UK has one of the leading biomarker laboratories in the world in the UK DRI Biomarker Factory. High-quality discovery and validation work is also taking place at institutions such as the University of Cambridge, which recently announced a national trial of blood tests for frontotemporal dementia. The UK has access to some of the largest, most comprehensive population studies in the world, including UK Biobank and Our Future Health. It also has the necessary infrastructure to test new diagnostics in clinical settings (e.g., NIHR Researcher Delivery Network, and Dementia Platform UK's Trial Delivery Framework). However, there needs to be a concerted effort from the funding community to better connect the ecosystem and bring about the next generation of dementia diagnostics – beyond p-tau2017 – into both research pipeline and clinical practice in the UK.

Efforts to advance dementia diagnostics are underway as part of the Dementia Goal Programme. In 2024, the first steps in the right direction were taken with a funding call from Innovate UK, inviting small and medium enterprises to test their diagnostic technologies through the Bio-Hermes-002 initiative.

Expanding technology innovation in dementia care

Over the next 15 years, dementia prevalence in the UK is projected to rise by between 40% and 70% (depending on assumptions about whether incidence will decline or rise) [3], placing unprecedented pressure on health and social care systems already under strain. The country faces significant shortages of specialised dementia care facilities and staff and currently relies heavily on around 700,000 unpaid carers who shoulder the responsibility of caring for loved ones with dementia [2].

Technological development offers an opportunity to address this impending crisis. Initiatives such as the UK DRI Care Research & Technology Centre, the Alzheimer's Society innovation programme, NIHR 2024 investment in HealthTech Research Centres and the Longitude Prize on Dementia (supported by the Alzheimer's Society, Innovate UK and Nesta) demonstrate pockets of work attempting to address the issue. Whether enough funding is directed to researching this area is moot.

Incentivising industry participation in dementia care technology development could help to move this area forward. This may require rethinking funding models for care technologies, such as creating dedicated innovation pathways with staged funding linked to implementation metrics. As technologies progress and associated development costs increase, cross-funder collaboration may be needed to ensure that

high-potential innovations successfully transition from development to implementation in publicly funded health and social care systems. The funding community could establish clearer pathways from early-stage research to implementation and provide researchers with the tools to navigate it effectively. Expanding the use of 'living labs' where innovations can be tested in real-world care environments and with direct input from people with dementia, carers and care professionals, might also prove beneficial.

Investing in interdisciplinary training programmes that integrate expertise in dementia care, technology development, and commercial strategy would help cultivate the next generation of innovators and researchers capable of bridging the industry-academia divide. These specialists would be uniquely positioned to translate academic insights into viable products, while maintaining focus on the needs of people with dementia and their carers.

Prioritising prevention research

Despite significant advances in understanding dementia risk factors, including the identification of two new modifiable risk factors by the 2024 Lancet Commission (a point unanimously highlighted by interviewees), there is relatively little UK research funding allocated to developing or exploring risk-reduction interventions. One conclusion to draw from our analysis is that dementia prevention research receives disproportionately limited funding relative to its potential impact. For example, despite hosting valuable resources such as the PREVENT and PROTECT programmes, the UK has only one clinical site among approximately 35 randomised clinical trials within the influential WW-FINGERS network of dementia prevention studies (the MET-FINGERS study, sponsored by Imperial College London).

There is a noticeable contrast between research activity and current policy priorities. While the NHS Ten Year Health Plan for England [7] reiterates the UK Government's commitment to shift 'from sickness to prevention', the research funding landscape has yet to follow suit, at least as far as dementia is concerned. It should be recognised, of course, that there are many studies underway that explore prevention of health conditions (such as hypertension, diabetes and depression) that are themselves risk factors for dementia. There nevertheless appears to be a gap between the growing body of knowledge on modifiable risk factors and the development of evidence-based preventative interventions that could be implemented at scale. It is particularly important to understand how access to and take-up of preventive strategies varies across the population and what is needed to address those disparities [16].

Given that an estimated 45% of dementia cases may be preventable by addressing modifiable risk factors [10], rebalancing the UK's dementia research portfolio, with dedicated funding streams for prevention research and stronger integration with international initiatives, could achieve substantial return on investment, both economically and in terms of reducing human suffering [17].

Diversifying funding streams for applied dementia research

A researcher seeking funding for work on molecular mechanisms or early translational research (Topics 5 and 3) has several options: they can apply to MRC, ARUK, BBSRC, or the Wellcome Trust, and present a grant within their remit. Similarly, someone working on diagnostic technologies (Topics 7 and 8) could have support from NIHR, MRC, ARUK, EPSRC, UKRI, and can collaborate with small and medium-sized enterprises funded by Innovate UK. However, scientists working on applied dementia research have fewer options. Our landscape analysis reveals an over-reliance on the NIHR, which provided 54% of all funding for therapeutic interventions and support for people with dementia and carers (Topic 1) in 2024. The next largest funder was the ESRC, which contributed 15%. Charity funding in this area is also comparatively limited, despite the substantial combined portfolios of the two leading dementia charities in the UK.

The heavy reliance on a single major funder may create vulnerabilities within the field, and places considerable pressure on the NIHR-funded dementia research programmes to deliver positive results for the field and for people living with dementia. Any funding concentration of this kind may create biases in the types of applied research pursued if the dominant funders put restrictions on what they will fund.

Encouraging partnership funding models would support both research activity and diversification, as illustrated by the 2024 joint EPSRC and NIHR NetworkPlus programme on technologies to enable independence [18] and Innovate UK's current collaboration with the Alzheimer's Society on the Longitude Prize on Dementia to drive the development of personalised technology-based tools [19], with the evaluative component funded by NIHR.

As interventions or diagnostics continue to be developed, they will require robust clinical data prior to widescale implementation. The Blood Biomarker Challenge, in which NIHR funds the economic evaluation component of the trials, is another blueprint for how funders can collaborate by supporting different elements of a larger programme of work.

Understanding gender differences to support equitable dementia research careers

Our analysis uncovered significant gender disparities in dementia research funding and publications, strongly influenced by research area and career stage. Despite overall gender parity among researchers, men continue to dominate senior research roles and funding allocations, especially in fields such as biomarker technologies and fundamental mechanistic research. In contrast, women are more likely to lead applied research focused on therapeutic interventions and care delivery. These patterns suggest structural differences in career trajectories and research topic preferences, which may influence long-term diversity in leadership and innovation in dementia research.

Addressing this imbalance is necessary for a sustainable and representative research ecosystem. Funders and research institutions should implement targeted initiatives to

support career progression for women in male-dominated fields, including funding schemes for mid-career transitions and strategic investment in areas where women remain underrepresented. Similarly, efforts to attract and support men in applied dementia research would promote diversity of perspectives in domains that appear to be dominated by women.

Establishing regular monitoring and reporting of gender metrics at both funder and institution levels will enable progress to be tracked over time. The availability of open data, as demonstrated in this analysis, offers a powerful tool to identify and address disparities, leading to a more balanced and effective dementia research ecosystem that better reflects and serves the diverse needs of society.

Leveraging diverse regional expertise to strengthen UK dementia research

Our analysis reveals a significant geographic concentration of dementia research funding, with 46% of total active funding in 2024 allocated to just six organisations within the so-called 'golden triangle' of London, Oxford, and Cambridge. This percentage likely increases when accounting for investments in the UK DRI, which has substantial presence in this region.

While the research quality emerging from these institutions is undeniable, a healthy research ecosystem surely requires broader geographic diversity. This regional imbalance limits the development of research capacity across the UK and misses opportunities to leverage diverse expertise and perspectives that could accelerate progress in understanding and treating dementia.

The risk factors for dementia are deeply intertwined with demographic and socioeconomic factors that vary significantly by region. Age remains the primary risk factor, with multimorbidity and lower educational attainment further increasing vulnerability. Although there are, of course, wide variations within any region of the UK, the population outside the 'golden triangle' is, on average, older, less healthy and less well-educated. Although most funders appear aware of the issues and some funders have made efforts to distribute awards more equitably across the country, the current picture as regards dementia research looks unsatisfactory.

Moving to a geographically more equitable distribution of research funding would have many potential benefits. It opens up opportunities for patients, service users and the public *across the country* to participate in research, reflecting the demographic and socioeconomic diversity of communities affected by dementia. It could make it easier for research questions to respond to local preferences and needs, given regional variations in health and social care commissioning and delivery. It would certainly help to identify and hopefully then respond to differences in intervention effectiveness and cost-effectiveness across geographies and organisational contexts. In turn, this would increase the potential for knowledge translation and take-up. Spreading dementia funding more evenly across the country supports economic growth through job creation, infrastructure development, and innovation ecosystems. It also supports

capacity development in the research community, which would have multiplier effects over time. The counter argument, of course, would be that grants are awarded to teams that are best placed to conduct the robust studies needed to achieve research excellence, and those happen to be located in a relatively small number of universities.

Our findings on the current concentration of funding in a small number of universities warrant consideration because of the risk of perpetuating regional disparities.. This challenge is not unique to dementia research, of course, as it likely applies to other fields. But a more equitable distribution of dementia research funding would surely be appropriate for a range of reasons. Continued monitoring of funding data, of the kind demonstrated in our analysis, could help inform strategies to redistribute research funding and track progress over time.

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