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EXECUTIVE SUMMARY

Alzheimer’s Research UK is the leading dementia research charity in the UK working to revolutionise the way we treat, diagnose and prevent dementia. One in two of us will be directly affected in our lifetime, either by caring for someone with the condition, developing it ourselves or both.

Dementia is one of our greatest healthcare challenges. Almost one million people are living with dementia today and this is set to increase to 1.2 million by 2040. With no treatments yet available on the NHS that can slow, stop or cure dementia, it is a leading cause of death. It is set to become the most expensive health condition in the UK by 2030.

However, we are at a tipping point for progress, with the first generation of treatments that slow cognitive decline becoming available. Increased investment over the last decade and the UK’s world-leading institutions mean that the UK is well placed to benefit from a wave of new investment that will accompany breakthroughs in treatments such as lecanemab and donanemab. Sustained investment in dementia research is vital to build on and accelerate further progress in developing new life-changing treatments. This offers the potential to transform the lives of millions of people across the UK and to support economic growth.

Against this backdrop, and an increased focus on the need to “future-proof research”, we commissioned analysis from the Office of Health Economics (OHE) to quantify the current economic benefit from investment in dementia research and to outline the potential in the future with sustained growth. Figures and findings throughout this report relate to this analysis and further details about the methodology and sources used can be found in OHE’s accompanying report.

KEY FINDINGS

- Each pound invested in dementia research generated £2.59 within the UK economy during 2019/20.
- This resulted in £529 million of economic impact including 7,353 full-time equivalent jobs.
- If the government’s manifesto commitment to double dementia research funding to £160m by 2024 is realised, every £1 invested will generate almost four times that (£3.96) in economic impact.
- Return on dementia investment will further increase with the availability of new disease-modifying treatments and advancements in prevention and diagnosis.
- Six times as many people (12,213) could benefit from participating in clinical trials for dementia if UK participants were included at the average participation rate in all 224 global phase 3 interventional trials.

With the right future government support and prioritisation, it is our view that the UK could benefit from a new wave of investment and be a world leader in dementia research. This would enable UK families to benefit from access to the first life-changing treatments for dementia and support economic growth where they live.
RECOMMENDATIONS

1. Develop a long-term strategic and sustainable plan for dementia research funding

Government must set out a long-term strategic and sustainable plan for dementia research funding, spanning experimental discovery science, translational science and clinical research. This should include:

- Proactive government investment in clinical trials and data infrastructure.
- Large-scale strategic initiatives like the UK Dementia Research Institute, which encourage greater working across fields of expertise and expand the UK’s science base while making the UK more attractive for investment.

2. Deliver on a healthcare mission approach to dementia

We believe an approach that brings stakeholders together to tackle dementia alongside other key healthcare “missions” benefits health and wealth, with a focus on improving outcomes while supporting economic growth. The Dame Barbara Windsor Dementia Mission and proposals for a dementia clinical trials network offer a promising basis. This approach must:

- Provide a framework for increasing the UK’s share of dementia trials and accelerating the development and delivery of new treatments.
- Focus on joining up key research initiatives to improve how we detect and diagnose the diseases that cause dementia, use healthcare data to speed up trials, and build innovation into trial delivery and regulation.

3. Embed and promote research across the UK

Research must be representative of the population if we are to fully understand the diseases that cause dementia and bring about a treatment that works for everyone. To achieve this requires sustained government leadership and investment to:

- Embed and promote research across all UK regions to create equitable opportunities for participation, supporting areas which have less research activity and infrastructure.
- Pilot new ways of structuring NHS services which better integrate clinical research with routine healthcare, such as brain health clinics.
INTRODUCTION

Dementia is a leading cause of death, claiming 66,000 lives in 2022 in England and Wales alone. In addition to the devastating social and emotional impact of dementia on the lives of families across the UK, it costs the economy nearly £25bn a year. This is projected to double by 2050, with costs rising faster than for other major conditions. As shown below, dementia will become the most expensive health condition in the UK by 2030.

FIGURE 1: Projected costs for cancer, dementia, coronary heart disease (CHD) and stroke

The breakdown of the economic costs of dementia to society is shown in figure 2. Social care (residential homes and formal care) account for the majority of the annual cost of dementia. While healthcare costs represent a lower amount, 40% of these costs relate to hospital inpatient stays. Additionally, around 11 billion hours are spent annually on informal unpaid care for dementia.

FIGURE 2: Breakdown of dementia costs

Unlike other major conditions, there are still no treatments available on the NHS that can slow, stop or prevent dementia. However, building on decades of research, government investment and focus have led to advances in science, medicine and technology and we are now at a tipping point for progress. The first new treatment which slows cognitive decline in people with early-stage Alzheimer’s is already available in the US and will soon be reviewed for use in the UK and Europe. Others are close behind, with over 140 treatments currently in trials. This creates a significant opportunity for action now to capitalise on these breakthroughs and drug pipeline.

Sustained investment in dementia research is vital to accelerate progress in new treatments and transform lives. It also supports economic growth in the UK and has the potential to position...
the UK as a world leader in this field. There has been increased investment over the last decade, which has included significant commitment to initiatives such as the UK Dementia Research Institute\textsuperscript{11} and the Dementia Discovery Fund\textsuperscript{12}. The government recently committed to double dementia research funding to £160m a year by 2024/25 and established the Dementia Mission\textsuperscript{4} to accelerate the development and delivery of new treatments. These initiatives recognise the social and economic importance of dementia and the opportunity to harness lessons from our response to the COVID pandemic.

With this context, we commissioned this analysis to assess the current economic benefit from investment in dementia research and to outline the potential in the future with sustained growth.

“I became involved with Alzheimer’s Research UK immediately after my wife’s death in order to contribute whatever I could to help the research into this terrible disease. I have a hope and passion that sometime in the not-too-distant future the research will prevent people suffering in the way my wife did.”

David Ensor (pictured with his wife Susan)
SECTION 1: ECONOMIC BENEFITS OF DEMENTIA RESEARCH

This analysis seeks to quantify the economic impact and the associated benefits to the economy and society that is generated by public and private investment in dementia research across the UK. It also projects how this is likely to change in the future. This includes contributions to the UK economy through jobs that are supported in dementia research and the creation of demand across the wider life sciences and research supply chain. Benefits to the wider economy through the earnings of dementia research workers are also considered. It should be noted that increased workforce capacity will help to accelerate breakthroughs as has been seen in cancer research.

AIMS OF THIS ANALYSIS:

To understand the value of dementia research through quantifying:

• The impact of dementia research investment in the UK in terms of jobs supported and gross value added (GVA).
• How that investment supports regions across the UK and different sectors.
• The societal benefits that investment in dementia technology delivers.
• The potential opportunity for dementia investment in the future.

HOW THE ECONOMIC IMPACT WAS ASSESSED

The methodological approach for the economic impact assessment of dementia research in the UK is supported by guidance in the HM Treasury Green Book. It combines information from different dimensions of dementia research (such as investment and employment) and measures of economic impact (benefit-cost ratio and gross value added – see glossary of key terms on page 7).

Positive effects of dementia research to the UK economy are captured when the benefit-cost ratio (BCR) is greater than one, meaning that every £1 invested in dementia research generates more than £1 of economic benefit in the UK.

To ensure transparency and replicability of results, publicly available databases have been used for the assessment. The results are estimations based on the analysis that was conducted, which considers private sector funding towards dementia research but not private sector (pharmaceutical research and development) spending on drug/product-specific development. The economic impact would be greater if this was included and also if treatments were available that could lead to improved health outcomes.

FIGURE 4: Dimensions, elements and indicators used to characterise the economic impact of dementia research in the UK

<table>
<thead>
<tr>
<th>DIRECT BENEFITS</th>
<th>INDIRECT BENEFITS</th>
<th>INDUCED BENEFITS</th>
<th>ECONOMIC IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct, indirect and induced FTE</td>
<td>Direct, indirect and induced GVA</td>
<td>Full-time salaries in dementia research and developent</td>
<td>Total FTE</td>
</tr>
<tr>
<td>Total GVA</td>
<td>BCR</td>
<td>Regional growth</td>
<td></td>
</tr>
</tbody>
</table>
GLOSSARY OF KEY TERMS

**Direct benefits** indicate the operational expenditure of dementia research organisations on employee salaries and considers all roles.

**Indirect benefits** relate to expenditure by dementia research organisations on products and services that serve as inputs for their operations. This expenditure provides money to suppliers, who then purchase goods and services from other businesses, influencing the entire supply chain.

**Induced benefits** are generated from the direct and indirect impacts. Those who are employed directly by dementia research organisations or indirectly by firms in the dementia research supply chain receive a wage that is used to acquire products and services by employees in their local economy. This leads to an additional ripple effect beyond the dementia research supply chain.

**Full time equivalent (FTE)** refers to the number of full-time jobs that a certain investment may sustain. Since FTEs are used rather than a simple headcount, comparisons can be conducted, even though the percentage of part-time employment differs between industries or/and organisations.

**Gross value added (GVA)** is a measure of net economic output which refers to the contribution of a sector or region to the national gross domestic product (GDP). It is determined by subtracting the value of inputs from the value of production.

**Benefit-cost ratio (BCR)** is an indicator which summarises the overall value for money of a project or proposal.
The analysis shows that dementia research totalled 7,353 full-time equivalent (FTE) jobs with £529 million of gross value added (GVA) in 2019/20. This breakdown of this is shown in Figure 5.

Dementia research directly supported 2,607 FTE jobs including 2,059 research/scientific and technical jobs and 548 administrative jobs. This is associated with £276 million of GVA.

Additionally, dementia research supported and generated 4,746 indirect and induced FTE jobs, which are associated with £253 million of GVA.

**Figure 5: Direct, indirect and induced full-time equivalent (FTE) jobs created by dementia research investment 2019/20**

Dementia research stimulated 2,415 indirect FTE jobs related to scientific research and development services and 274 indirect FTE jobs in wholesale trade services. The scientific indirect jobs provided an additional output of £121 million, while £14 million was generated in wholesale trade services. Figure 7 shows the sectoral breakdown of the indirect benefits of dementia research.

**Figure 6: Direct, indirect and induced gross value added (GVA) of dementia research investment in 2019/20**

**Figure 7: Breakdown of indirect benefits of dementia research by sector**
Investment includes government, charity and private sector investment for the base year of 2019/20. Government funding for that year was £104 million\(^{15}\). Given a lack of available evidence on the size of investment in the private sector, we have estimated this based on previous economic analysis of the impact of biomedical and health research, which suggests that overall, every additional £1 of public research is associated with an additional £0.83-£1.07 of private sector research and development (R&D) spend in the UK\(^{16}\). Using the mid-point of this range and applying this to dementia research specifically, we estimate that total UK dementia research investment was £204 million in the financial year 2019/20.

**FIGURE 3: Investment in dementia research in the UK and its economic impact in 2019/20**

<table>
<thead>
<tr>
<th>DEMENTIA RESEARCH INVESTMENT 2019/20</th>
<th>TOTAL: £204M</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT RESEARCH FTE JOBS</td>
<td>2,607</td>
</tr>
<tr>
<td>INDIRECT AND INDUCED FTE JOBS</td>
<td>4,746</td>
</tr>
<tr>
<td>DIRECT GROSS VALUE ADDED</td>
<td>£276M</td>
</tr>
<tr>
<td>INDIRECT AND INDUCED GROSS VALUE ADDED</td>
<td>£253M</td>
</tr>
<tr>
<td>TOTAL ECONOMIC BENEFITS:</td>
<td>£529M</td>
</tr>
<tr>
<td>BENEFIT-COST RATIO:</td>
<td>2.59</td>
</tr>
</tbody>
</table>

*See glossary of key terms on page 7

In order to forecast the benefit-cost-ratio (BCR) to 2040, a 3% annual increase in investment is assumed and inflation forecasts are incorporated. We find that the average BCR from 2020 to 2040 will be 2.91, meaning that every £1 invested in dementia research is expected to generate an average of £2.91 of economic benefits in the UK between 2020 and 2040.

**TABLE 1: Economic impact forecast to 2040**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>INVESTMENT</th>
<th>FTE JOBS</th>
<th>GVA</th>
<th>BCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019/20</td>
<td>£204,165,000</td>
<td>7,353</td>
<td>£529,089,886</td>
<td>2.59</td>
</tr>
<tr>
<td>2040</td>
<td>£247,999,018</td>
<td>10,849</td>
<td>£780,668,752</td>
<td>3.15</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>£229,255,832</td>
<td>9,309</td>
<td>£669,847,014</td>
<td>2.91</td>
</tr>
</tbody>
</table>

Given the government’s commitment to invest £160 million in dementia research by 2024, in table 2 we provide the estimates for 2024 which are based on this being achieved. In this case, the BCR for 2024 will be 3.96, meaning that every £1 invested would generate four times this amount in economic impact totalling £1,236 million.

**TABLE 2: Economic impact forecast in 2024 with the government commitment to invest £160 million in dementia research**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>INVESTMENT</th>
<th>FTE JOBS</th>
<th>GVA</th>
<th>BCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2024</td>
<td>£312,000,000</td>
<td>17,170</td>
<td>£1,235,594,772</td>
<td>3.96</td>
</tr>
</tbody>
</table>
Dementia research has a presence in all four countries of the UK and all regions of England. Alzheimer's Research UK Research Network\(^{17}\) includes 12 centres across the UK. However, looking across research and development spending as a whole, this is unevenly distributed with 54% of investment concentrated in London and the South East. Research and development expenditure per head in the East of England was £1,106, while the North East and Wales had investment of £278 and £252 per head respectively\(^{18}\).

Many of the jobs in dementia research are scientific and technical roles, which tend to be highly skilled. Accordingly, full-time salaries in dementia research and development are on average 41% higher than the average salary across all jobs in a region\(^{19}\). As shown in the map below, dementia research can particularly benefit parts of the UK where salaries are typically lower by creating well-paid jobs, and therefore increasing the living standards locally and helping to tackling inequalities across the UK. It also increases opportunities for wider and more representative participation in research across the population of the UK.

**FIGURE 8: Regional salary comparisons for research and development**

<table>
<thead>
<tr>
<th>AREA</th>
<th>R&amp;D%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Scotland</td>
<td>+40.2</td>
</tr>
<tr>
<td>2 North</td>
<td>+51.6</td>
</tr>
<tr>
<td>3 North West</td>
<td>+48.5</td>
</tr>
<tr>
<td>4 Yorkshire</td>
<td>+51</td>
</tr>
<tr>
<td>5 Midlands</td>
<td>+47.4</td>
</tr>
<tr>
<td>6 East</td>
<td>+34.3</td>
</tr>
<tr>
<td>7 London</td>
<td>+17.3</td>
</tr>
<tr>
<td>8 Thames Valley</td>
<td>+25.2</td>
</tr>
<tr>
<td>9 South Coast</td>
<td>+31</td>
</tr>
<tr>
<td>10 South West</td>
<td>+44.7</td>
</tr>
<tr>
<td>11 Wales</td>
<td>+48.5</td>
</tr>
<tr>
<td>12 Northern Ireland</td>
<td>+51.8</td>
</tr>
</tbody>
</table>

This analysis is based on the data available – there is a need for more granular data collection to enable a more detailed and complete picture.
SECTION 2: ALZHEIMER’S RESEARCH UK INVESTMENT

In 2021/22, we invested £23.6m in pioneering research.20

Alzheimer’s Research UK fund research into all forms of dementia in our search for a cure. This includes research into understanding the diseases that cause dementia, improving diagnosis, finding out more about how to reduce risk, and developing treatments.

SUPPORTING RESEARCHERS

Our UK-wide Research Network18 brings together nearly 3,000 dementia researchers to share ideas, collaborate and progress our search for a cure.

We support researchers from the start of their careers and provide ongoing funding for initiatives at the cutting edge of translational research. These initiatives will ensure that discoveries in the lab benefit people affected by dementia as quickly as possible.

DRUG DISCOVERY ALLIANCE

The Drug Discovery Alliance21 brings together three dedicated Drug Discovery Institutes, all working to translate new findings from academic research into potential treatments as quickly as possible.

The Alliance is now working on a portfolio of projects each of which involves a partnership between academic researchers and a private biotech or pharmaceutical company. Teams from our Drug Discovery Alliance are currently investigating more than 20 potential new targets for treatments for dementia.

DEMENTIA DISCOVERY FUND

The Dementia Discovery Fund12 (DDF) is an international programme, of which Alzheimer’s Research UK is a partner, that supports new biotech companies aiming to bring about life-changing dementia treatments. To date, the Fund has invested £250m in 18 different companies based in the UK and the US.

AviadoBio, established with DDF support, is exploring gene therapies as potential treatments for neurodegenerative diseases. Clinical trials of the company’s first drug, AVB101, designed for people with frontotemporal dementia, if successful, could permanently correct faulty genes, transforming the lives of those affected. There are now eight drugs developed by companies funded by the Dementia Discovery Fund in clinical trials.
DEMENTIA CONSORTIUM

The Dementia Consortium\(^2\) was established in 2014 with Alzheimer’s Research UK as managing partner. Like our Drug Discovery Alliance, it unites dementia researchers and drug discovery experts in the pharmaceutical industry, creating new collaborations to accelerate the discovery of potential new treatments for dementia.

One such collaboration between researchers at King’s College London and industry partners AbbVie, Eisai, Lilly and MSD is aiming to strengthen ‘protein tethers’ that connect structures performing specific functions inside nerve cells in the brain. The team is now working to identify and test new compounds that can bind to and strengthen these connections, which are damaged in Alzheimer’s and other neurodegenerative diseases.

UK DEMENTIA RESEARCH INSTITUTE

The UK Dementia Research Institute\(^1\) (UK DRI) is supported by funding from the Medical Research Council, as well as from Alzheimer’s Research UK and other strategic partners. It focuses on basic and translation science, early-stage development of diagnostics and treatments, experimental medicine, and the development of a new generation of technology to support those living with dementia.

The UK DRI’s Biomarker Factory was launched in January 2022. Biomarkers are molecules in the blood or fluid surrounding the brain that can help signal harmful biological processes that lead to diseases like Alzheimer’s. The Biomarker Factory has already analysed more than 5,000 samples for 21 different research studies - using exceptionally sensitive equipment to identify and monitor biomarkers at a point when their detection would have been previously impossible. Earlier detection will enable earlier intervention, when treatments are likely to be far more beneficial in people’s lives.

EARLY DETECTION

Our programmes on early detection are paving the way for earlier and more accurate diagnosis.

We recently launched our Blood Biomarker Challenge in partnership with the Alzheimer’s Society and National Institute of Health Research. Generously funded by the People’s Postcode Lottery, this will support work to develop and implement a blood test for detection of the diseases that cause dementia.

Our Early Detection for Neurodegenerative Diseases initiative\(^3\) is using the wealth of digital data now at our fingertips to transform early detection, through identifying digital ‘fingerprints’ that indicate the earliest signs of disease.

These programmes are will collect valuable data from research volunteers to compare new methods of detection and diagnosis against clinical tests like brain scans to support earlier and more accurate diagnosis.

We’re proud of our role in helping bring about some of the most important research breakthroughs in recent years. Our new research strategy\(^4\) will build on these breakthroughs with a major focus on building capacity for clinical trials - testing the effectiveness of potential new treatments.
SECTION 3: UK SHARE OF GLOBAL DEMENTIA CLINICAL TRIALS

Clinical trials are an important part of the dementia research ecosystem, essential to the development of new treatments for the diseases that cause dementia, and to ensuring that these are safe and effective. A growing treatment pipeline in Alzheimer’s and dementia, combined with recent regulatory approvals in the USA, means that dementia research will likely see growing investment from the life sciences industry over the next few years. The UK has the potential to benefit from this new wave of investment, offering people in the UK the opportunity to be among the first to benefit from new treatments.

In 2019, the total estimated income for the NHS from delivering commercial clinical trials across all disease areas was £355 million, and an estimated 47,500 jobs were generated. However, as has been documented in the recent O’Shaughnessy review and by the Association of the British Pharmaceutical Industry, the UK is currently falling behind other countries, averaging only a 3.6% share of global clinical trials across all disease areas in 2020, a decline from 6.8% in 2015. For phase 2 and 3 trials, the UK ranks fifth globally and has the highest percentage of missing enrolment targets (13.7%).

The O’Shaughnessy review highlighted recent successes, such as the COVID-19 vaccine and therapeutic trials. The review describes “a dynamic partnership of government, academia, industry, the NHS and the public, all aligned on the urgent need to develop treatments to prevent or treat an urgent health need”. The Dementia Mission has recently been established to apply the same approach to accelerating the development and delivery of treatments for dementia. It is therefore timely to consider the opportunities and potential for dementia clinical trials.

This section focuses on the share of the UK in the global dementia clinical trial pipeline, calculated both in terms of the number of trials which have UK sites, and the number of UK participants enrolled. It then considers the number of UK participants who could access current phase 3 interventional clinical trials if UK participation in global dementia trials is increased. We focused on phase 3 trials in particular as this is the stage prior to authorisation when the largest number of participants are involved and are most likely to benefit from receiving a new potential treatment or intervention. This is particularly pertinent given the current opportunities and pressing need in dementia.

For the analysis, data was collected on phase 3 clinical interventional trials for different types of dementia (including Alzheimer’s disease, vascular, frontotemporal, dementia with Lewy bodies, young onset and mixed dementias). The trials in the sample, drawn from ClinicalTrials.gov, had one of the following statuses as of the 30th January 2023: “Active, Not recruiting”, “Completed”, “Enrolling by invitation”, “Recruiting”.

As shown in Figure 9 the UK’s share of dementia phase 3 clinical interventional trials is 17% (39/224).

FIGURE 9: Number of phase 3 clinical interventional trials for dementia in the UK and worldwide

![Diagram showing number of trials and countries hosting trials](image-url)
This represents the number of trials for which there are UK sites. When looking at the average number of sites per trial, however (see Figure 10), this is just seven sites per trial for the UK, compared to the overall average of 134 across all participating countries.

The small number of UK sites impacts the number of UK participants who are enrolled in dementia clinical trial. It is estimated that UK participants make up just 2.5% of the total phase 3 clinical trials participants for dementia worldwide. This low level of participation was also highlighted in a Parliamentary Question, which showed that just 61 participants were recruited into National Institute for Health and Care Research supported phase 3 trials for dementia in 2021/22\(^3\). This is 100 times fewer than the number of participants recruited for equivalent phase cancer trials over the same period. For example, 247 study locations worldwide are listed on ClinicalTrials.gov for the lecanemab trial, with only eight of these in the UK\(^3\). Lecanemab is the first drug treatment for Alzheimer’s disease that has been shown to tackle the disease itself, rather than just its symptoms.

**FIGURE 10: Average number of phase 3 clinical interventional trial sites for dementia**

![Average number of trial sites for dementia](image)

**FIGURE 11: Share of the UK in phase 3 dementia clinical interventional trials**

![Share of trials and participants](image)

It is clear there is considerable potential to increase UK participation in dementia phase 3 clinical trials. If UK participants were included at the average participation rate across all participating countries, in all 224 global phase 3 interventional clinical trials for dementia, this would increase access to an estimated total of 12,213 people living with dementia, six times more than is currently the case.
When looking at funding for phase 3 clinical trials, it is interesting to note that the vast majority of phase 3 dementia clinical trials in the UK are industry-funded (96% and 84% for dementia and Alzheimer’s disease, respectively, and 100% for vascular, frontotemporal and Lewy body dementia respectively). Worldwide, the proportion of non-industry funded phase 3 dementia trials is 32%, considerably higher than the UK’s 4% proportion. This also highlights the need for more trials to be conducted across all types of dementia.

This aligns with long-term trends for trial funding across all disease areas in the UK, which show industry funding increasing from 76% of trials to 85% between 2011-2020 and non-industry funding decreasing accordingly from 24% to 15% over this period.

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This aligns with long-term trends for trial funding across all disease areas in the UK, which show industry funding increasing from 76% of trials to 85% between 2011-2020 and non-industry funding decreasing accordingly from 24% to 15% over this period.
The numbers of people living with dementia are set to grow to 1.2 million by 2040 making the need for detection and treatment ever more important. Previous modelling has shown that, if we could delay the onset of dementia by five years, we could reduce the number of people living with the condition by one third.

With developments and innovation in treatments, diagnostics and early detection, there is significant potential to transform lives through research investment. This will also increase the economic benefit to society through reducing health and social care costs and enabling caregivers to remain in work. Additionally, it will attract more investment.

NEW TREATMENTS IN DEVELOPMENT

The most recent analysis of the drug pipeline for Alzheimer’s disease shows that 79% of drugs currently in trials are for disease-modifying therapies, with 36 agents at phase 3 trial stage, 87 at phase 2 and 31 at phase 1.

With two treatments, lecanemab and donanemab, already at the regulatory and approval stages, the first treatments that slow cognitive decline may soon be available to people living with early-stage Alzheimer’s disease. This demonstrates that we can treat the diseases that cause dementia, but there is still much more to do to build on these initial relatively modest effects.

Over the last seven years, the number of trials for Alzheimer’s disease has increased from 115 in 2016 to 187 in 2023, demonstrating that this is an area of growth.

More research is needed to improve our understanding and investigate different drug targets and agents, including repurposed drugs and potential combination therapies. We also need to monitor the use in practice of treatments as they become available.

### NEW TREATMENTS IN DEVELOPMENT

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Total number of drug agents in trials for Alzheimer’s disease</th>
<th>Total number of Alzheimer’s disease trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td>141</td>
<td>187</td>
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<td>2019</td>
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By 2040 I think we’ll be in the position to offer a range of treatments and we might not know exactly why, but one of them will be able to act on the huge range of causes.

Julie Williams  
UK DRI Centre Director
MORE DEMENTIA CLINICAL TRIALS IN THE UK

Clinical trials are essential to developing new treatments and investment in the UK’s ability to deliver these is crucial to enabling UK patients to be among the first to benefit. This will also attract industry investment. Recent reports have highlighted a wider need in this area\(^{25,26}\) and the potential for dementia to be one of the first areas for implementation of a clinical trials acceleration network.

The O’Shaughnessy review suggests that “Creating a CTAN [Clinical Trials Acceleration Network] for Alzheimer’s disease would, alongside the Dementia Translational Research Collaborative, enable the UK to have the world’s best platform for clinical trials in this field.”

Work is already ongoing, led by the National Institute for Health Research, to build on the Dementia Translational Research Collaborative (D-TRC) of Biomedical Research Centres to form the basis for a clinical trials network for dementia to drive increased speed and scale in clinical trials.

The key goal of this network must be supporting greater industry investment in the UK. To do this, the network needs to accelerate the speed of setting up clinical trials and create a flow of eligible people to be part of research. The network also needs to look to support a range of different sites, both geographically and in their research activity. This should include both leading research centres and those which are less active but looking to increase their activity and build greater capacity\(^5\).

TOOLS FOR DIAGNOSIS AND EXPERIMENTAL MEDICINE

New diagnostic tools are essential to enabling early and accurate diagnosis and supporting experimental research and clinical trials. These will need to be able to identify suitable and diverse patients at an early enough stage of disease, monitor progression, and measure the impact of experimental drugs. Currently, we can’t identify people effectively because of limited availability of diagnostic tests such as PET (positron emission tomography) scans and lumbar punctures.

Avenues that are being explored include blood-based biomarkers, digital biomarkers and cutting-edge functional tests. As changes in the brain can happen up to 10-15 years before people notice clinical symptoms like memory loss, research to develop and validate these tools has the potential to transform diagnosis and accelerate clinical trials.

RISK REDUCTION

In addition to developing treatment for the diseases that cause dementia, there is great potential to reduce the risk of developing dementia through a mix of health and lifestyle factors. Recent research indicates that addressing 12 risk factors which impact our brain health could prevent or delay up to 40% of dementia cases across the globe\(^33\).

While our knowledge of risk factors for dementia is increasing, there is a need for robust randomised control trials to further strengthen this evidence base and understand which specific interventions would bring about the greatest value and cost effectiveness. Priorities within this include better understanding of how risk factors cluster around inequalities which occur particularly in minority ethnic groups and vulnerable populations. Hearing loss, hypertension and air pollution are also important areas for further focus.

Research in this area has benefits far beyond dementia and neurological disease as many of the risk factors for poor brain health are shared with other health conditions including cardiovascular disease and cancer\(^33\).
A strong environment for dementia research is essential to support the development and delivery of new treatments. The government has recognised life sciences as a growth area and the scale of the need in dementia. Dementia treatments are now becoming available which impact the course of the underlying disease for the first time. This reduces the risk of investment and offers potential for this to be a key growth area for the UK economy.

With the right government support and prioritisation, it is our view that the UK could benefit from a new wave of investment and be a world leader in dementia research. This would enable people in the UK to benefit from access to the first life-changing treatments for dementia and support economic growth where they live.

1. Develop a long-term strategic and sustainable plan for dementia research funding

Government must set out a long-term strategic and sustainable plan for dementia research funding, spanning experimental discovery science, translational science and clinical research. This should include:

- Proactive government investment in clinical trials and data infrastructure.
- Large-scale strategic initiatives like the UK Dementia Research Institute, which encourage greater working across fields of expertise and expand the UK’s science base while making the UK more attractive for investment.

2. Deliver on a healthcare mission approach to dementia

We believe an approach that brings stakeholders together to tackle dementia alongside other key healthcare “missions” benefits health and wealth, with a focus on improving outcomes while supporting economic growth. The Dame Barbara Windsor Dementia Mission and proposals for a dementia clinical trials network offer a promising basis. This approach must:

- Provide a framework for increasing the UK’s share of dementia trials and accelerating the development and delivery of new treatments.
- Focus on joining up key research initiatives to improve how we detect and diagnose the diseases that cause dementia, use healthcare data to speed up trials, and build innovation into trial delivery and regulation.

3. Embed and promote research across the UK

Research must be representative of the population if we are to fully understand the diseases that cause dementia and bring about a treatment that works for everyone. To achieve this requires sustained government leadership and investment to:

- Embed and promote research across all UK regions to create equitable opportunities for participation, supporting areas which have less research activity and infrastructure.
- Roll out brain health clinics across the UK to embed research into routine healthcare. Brain health clinics are an emerging health service model which integrate research and clinical expertise. Working in tandem with existing dementia services, this new model aims to drive progress in detection and early diagnosis of dementia, increase diverse participation in dementia research and enable the translation of research into clinical practice.
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