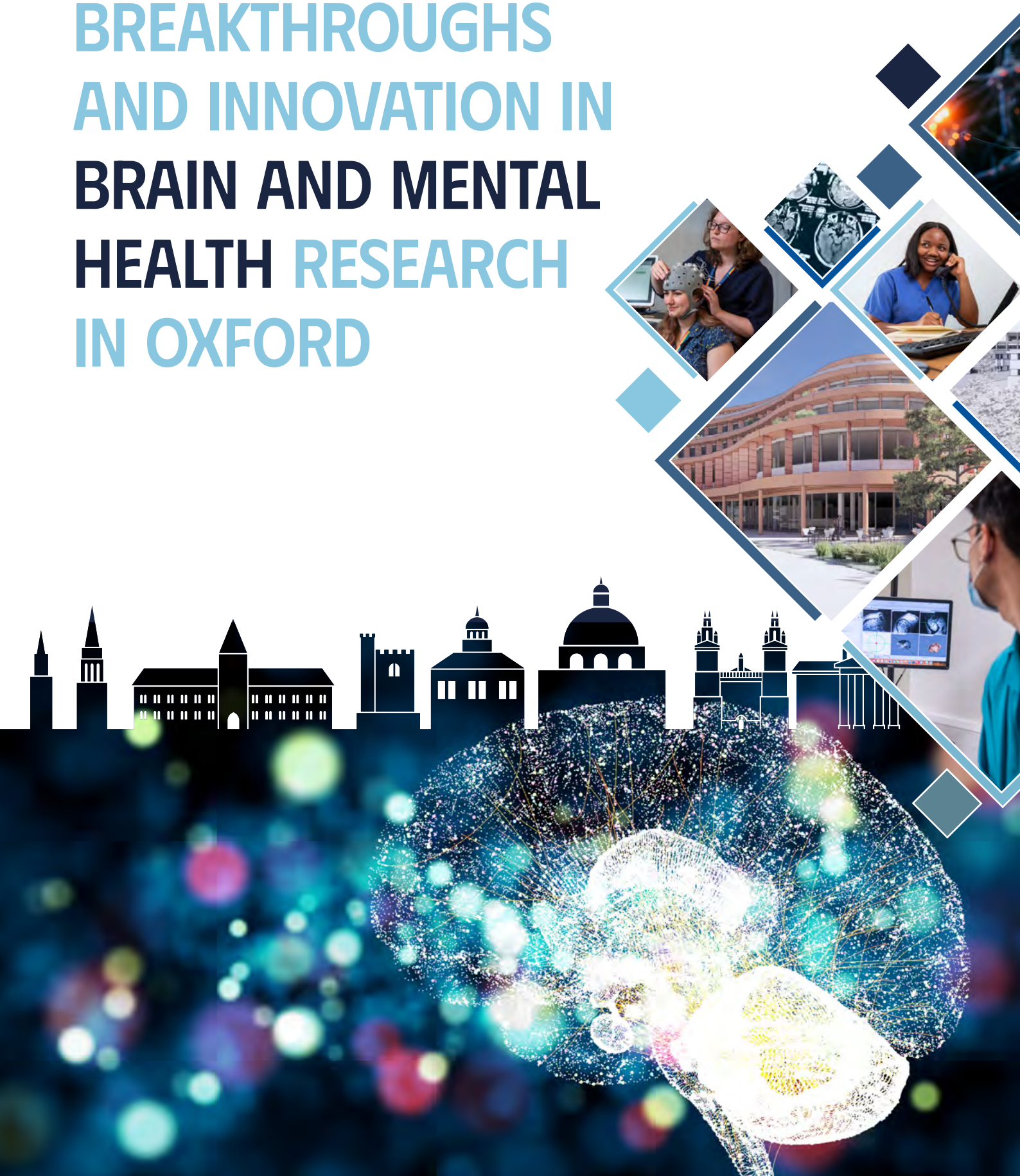
Warneford Park

NHS Oxford Health NHS Foundation Trust

UNIVERSITY OF OXFORD

BREAKTHROUGHS AND INNOVATION IN BRAIN AND MENTAL HEALTH RESEARCH IN OXFORD



UNIVERSITY OF OXFORD AND OXFORD HEALTH NHS FOUNDATION TRUST: AN EFFECTIVE AND TRANSFORMATIONAL PARTNERSHIP

The University of Oxford is one of the most important centres for medical research in the world. Brain science and mental health are among Oxford's top priorities, reflecting the increasing potential for new discoveries in the brain to generate far-reaching improvements in human health. Oxford Health NHS Foundation Trust is one of the largest mental and community health trusts in the NHS, and the key teaching and research partner with the University in brain science and mental health.

By leveraging the research strengths of the University and the clinical strengths of the NHS, we're driving rapid improvements in the lives of our patients, and at the same time delivering large gains to the UK economy.

Oxford is the only city in England outside of London to host two National Institute for Health and Care Research (NIHR) Biomedical Research Centres (BRCs). Together, the University of Oxford and Oxford Health NHS Foundation Trust host the NIHR Oxford Health Biomedical Research Centre (OH BRC), dedicated to translating innovative research into better treatments for mental and brain health disorders, receiving in excess of £50m of funding from the NIHR since 2017. It is one of only two BRCs dedicated to brain and mental health in England and is home to the only Clinical Research Facility (CRF) focused on brain and mental health clinical research in the country.

OH BRC hosts the NIHR Mental Health Translational Research Collaboration (MH TRC) – a network currently comprising 20 UK centres of excellence with strong industry collaborations. The MH TRC-led Mental Health Mission aims to increase capacity in mental health research through providing relevant training and creating better systems to support industry- and academic-led research and investment across the UK.

166
Oxford spin-outs

Oxford spinouts amassed more than
£7.4BN
in investments

£872M
secured in 2023/24 alone

DRIVING ECONOMIC GROWTH LOCALLY AND NATIONALLY

With particular strengths in biosciences and new technologies, Oxford is the leading UK university for spinout creation, having created 300 new companies since 1988, and over 100 in the last five years. To date, 166 Oxford spinouts have amassed more than £7.4 billion in investments, with £872 million secured in 2023/24 alone.

A study carried out in 2018/19 by London Economics to measure the University's impact on the UK economy found:

- The University of Oxford contributes around £15.7 billion to the UK economy and supports more than 28,000 full-time jobs.
- The total impact in regions outside the South East was over £4 billion (38%), with impacts in excess of £100 million occurring in each region outside of the South East.
- Every £1 invested in University of Oxford research and knowledge exchange activities generated £10.30 for the UK national economy.

LEADING THE WORLD ON RESEARCH AND INNOVATION

According to the 2021 Research Excellence Framework, the University of Oxford boasts the largest volume of world-leading research in the UK, with 100 per cent of the research environments in the departments focused on brain and mental health classed as world-leading.

Oxford University has been placed number 1 in the Times Higher Education World University Rankings for the eighth year running, and the Medical Sciences Division has been ranked number one in the world for 14 years in a row.

The University of Oxford has been at the forefront of vaccine development, leveraging cutting edge technologies to address some of the world's deadliest diseases. The Oxford R21 Matrix-M malaria vaccine is one of the most affordable malaria vaccines that can be deployed at scale and is being rolled out in Africa, with the potential to save millions of lives.

Oxford is world-famous for research and teaching excellence and home to some of the most talented people from across the globe. Our work helps the lives of millions, solving real-world problems through a huge network of partnerships and collaborations. The breadth and interdisciplinary nature of our research alongside our personalised approach to teaching sparks imaginative and inventive insights and solutions.

From depression to dementia, brain and mental illnesses are some of the most pressing health, social and economic issues of our time.

Around one in four people will experience a mental health challenge every year.[1] Nearly a million people in the UK currently have dementia, a number expected to rise to 1.4 million by 2040.[2]

Though the number of people affected grows, prevention and treatments have not yet caught up. This has a huge impact on the individuals affected, their families and their communities, not to mention the wider impacts on society, the NHS and the economy. It is estimated that poor mental health costs the UK economy £110 billion per year.[3]

Innovations in mental and brain health care have the potential to reduce waiting lists and costs, get more people back to work quicker and build economic productivity and growth.

World-leading teams at Oxford are at the very cutting edge of brain and mental health research – accelerating our understanding and working at speed to translate scientific breakthroughs into benefits for patients.

Working with partners in industry and charitable foundations, researchers in Oxford are developing the latest treatments and technologies for some of the most prevalent neurological and mental health conditions. Oxford is a world leader in the development and dissemination of new and highly effective psychological therapies. Our work is both improving patient outcomes and helping prevent and detect disease.

Our researchers work with communities all over the world, aiming to improve mental health provision and care locally, nationally and on a global scale through the life course, with a focus on helping people lead healthier lives – understanding and preventing sickness, as well as treating it.

- In *children and adolescents*, we're developing, testing and rolling out effective and scalable new therapies and improving ways of supporting young people.
- In *adults*, we're using innovative techniques and artificial intelligence to help diagnose and find the best treatments for serious mental illnesses such as psychosis and depression.
- In *older adults and those affected by dementias*, we're using the latest scientific evidence and technology to speed up our ability to prevent, diagnose and treat conditions.

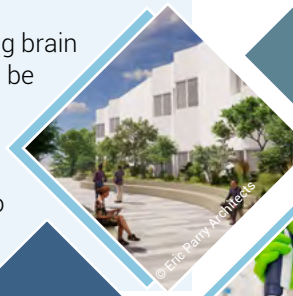
Subject to approval and necessary funding, **Warneford Park** in Oxford will see the creation of the UK's pre-eminent mental health and brain science campus.

Purpose built and fit for the future, it will tackle the world's biggest brain and mental health challenges and further strengthen the UK's role as a global leader in life sciences.

Bringing together science and clinical care on one site will see the benefits from mental health research translated directly into clinical practice, delivered by top class specialists focused on preventing, diagnosing, and treating mental illness early.

Warneford Park provides an unparalleled opportunity to discover new tests, treatments and drugs that have a positive impact on patients, their families and communities both here in the UK and across the world.

As solutions are found to the most pressing brain and mental health challenges, patients will be able to lead healthier, more independent lives in their homes and communities, with the potential to bring down waiting lists on the NHS, enable people to return to work and society quicker, and grow the local and national economy.



[1] NHS England (2023) Introduction to the Mental Health of Children and Young People in England, 2023

[2] Carnall Farrar/Alzheimer's Society (2024) The Economic Impact of Dementia

[3] Mental Health Foundation (2024) The Economic and Social Costs of Mental Ill Health

ABOUT WARNEFORD PARK

A collaboration between the University of Oxford, Oxford Health NHS Foundation Trust and a partner, Warneford Park would comprise:

- **A new mental health hospital, offering the best treatment, care, and therapeutic environment.**
- **A modern scientific facility for the world-leading brain research taking place at the University of Oxford, with additional space for biotech, pharmaceutical and related start-up companies alongside facilities for the mental health charity SANE.**
- **A new post-graduate college for the University of Oxford focused on medical sciences, bio-engineering and related disciplines, attracting graduate students and post-doctoral researchers who will enrich research and innovation at Warneford Park.**

CHILD AND ADOLESCENT MENTAL HEALTH

One in five children aged five to 16 have a probable mental health problem[1], and it is thought that three quarters of mental health problems emerge before the age of 24[2].

As poor mental health rates rise among the young, child and adolescent mental health services are increasingly overstretched and the impact on society grows.

Our work is already improving care and support for children and young people and we continue to develop innovative new treatments to help bring down NHS waiting lists.

Our research spans improving scientific understanding of brain development during infancy, childhood and adolescence, to finding the most effective solutions for the adolescent mental health crisis.

Our ultimate aim is to enable young people to lead the lives they want to live, benefitting them, their families and society as a whole.

We are undertaking some of the world's largest studies into child and adolescent wellbeing, such as the OxWell survey which reached more than 40,000 adolescents in England in 2023. We are asking young people about issues such as social media use and what mental health support works best for them. The findings help inform and influence policy in schools and local and national health services.

[1] NHS England (2023) Mental Health of Children and Young People in England, 2023
[2] Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. (2005). Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry, 62 (6) pp. 593–602.

DIGITAL THERAPIES FOR CHILDHOOD ANXIETY

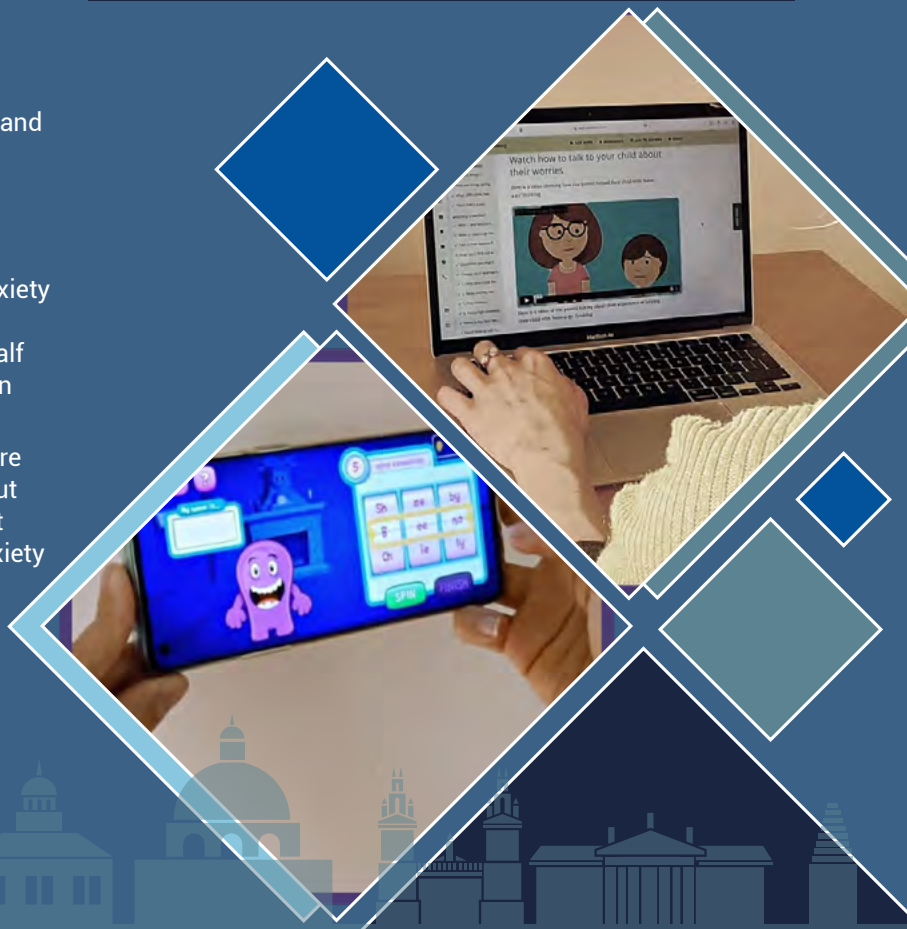
The Online Support and Intervention for Child Anxiety (OSI) tool is an internet-based therapy that empowers parents to apply cognitive behavioural therapy (CBT) principles to their child's day-to-day lives to help them deal with anxiety. Developed by Professor Cathy Creswell's team, it was one of four digital tools developed by Oxford researchers that were recommended by the National Institute for Health and Care Excellence (NICE) for use in the NHS in 2023.

In a randomised controlled trial, OSI was demonstrated to be clinically and cost-effective, demonstrating that children receiving OSI with therapist support showed similar reductions in anxiety and improvements in daily functioning as those receiving standard CBT. Yet OSI required almost half as much therapist time to deliver – 182 minutes on average compared to 307 minutes for usual care.

This means OSI could allow therapists to treat more children within busy mental health systems without compromising outcomes. If implemented widely, it could substantially expand access to effective anxiety treatment for children and their families.

OSI has now been commercially licensed as part of a partnership between Oxford University Innovation and Koa Health to enable it to be sustainably rolled out at scale in NHS trusts across the country.

"I feel confident enough that I now have the tools... It's changed my concept on how to deal with life as well." Parent



DIGITAL THERAPIES FOR CHILDHOOD ANXIETY

In Oxford, we're using cutting edge techniques and technologies to help diagnose and find the best treatments for serious mental illnesses such as psychosis and difficult-to-treat depression.

DEPRESSION

An estimated five per cent of adults experience depression and it is a leading cause of disability worldwide.[1] However, *current treatments do not work for everyone*. Difficult-to-treat depression (DTD) is when people continue to experience clinical symptoms even though they are taking antidepressant medication.

There is an urgent need to speed up the development of new therapies and enable treatments to be personalised to individuals who may not all respond in the same way.

We're working with industry and patients to help deliver the next-generation of fast-acting antidepressant treatments. Our research projects range from using artificial intelligence to enable GPs to work with patients to find the most effective antidepressant for them, to looking at the effects of other potential drug treatments such as ketamine and psilocybin.

5% of adults experience depression

Mood Disorder Clinics

The NIHR/Office for Life Sciences-funded Mental Health Translational Research Collaboration Mental Health Mission is hosted in Oxford but has established a network of research clinics throughout the UK. These clinics efficiently assess patients with difficult to treat mood disorders and offer them enrolment in research studies. The network can also support primary care services by providing assessment and treatment advice for patients who have not responded to initial treatment.

After being diagnosed with clinical depression, Gulliver Waite tried to stop taking antidepressants, but relapsed each time. He joined the PAX-D trial, run by Professor Michael Browning, which randomly allocated participants to either pramipexole - which boosts the mood-altering brain chemical dopamine - or a placebo. Gulliver started the trial in January 2022 and after completing the trial, was told he had received pramipexole and is continuing to take it.

PSYCHOSIS

Psychosis includes a range of symptoms associated with significant alterations to a person's perception, thoughts, mood and behaviour. It usually first affects people in their teens or early adult years – although older people can experience it too. Schizophrenia is the most common psychotic disorder.

People with psychosis are at particular risk of social isolation and exclusion due to their mental illness. However, *there have not been significant advances in psychosis treatments for more than 50 years,* since the development of antipsychotic medication, which can have debilitating side effects and do not work for everyone.

In Oxford, we're hosting major programmes that could revolutionise the treatment of people experiencing psychosis, including a global study investigating the effectiveness of cannabidiol (CBD) and a trial testing if immunotherapy could treat some patients with a form of psychosis that could be caused by antibodies in their blood.

gameChange: Virtual Reality to help people with psychosis

gameChange is a landmark virtual reality treatment, targeting the intense anxiety that keeps many people with psychosis from participating in everyday activities. These fears can develop into a severe agoraphobia that means people avoid leaving the home, severely disrupting relationships with family and friends, their education, and working lives. gameChange is automated and can be delivered in a variety of settings, including patients' homes.

Funded by the National Institute for Health and Care Research i4i (Invention for Innovation) Mental Health Challenge Award, research showed that gameChange led to significant reductions in the avoidance of everyday situations and distress, with those experincing the most severe symptoms benefitting the most. gameChange is now available to mental health services through Oxford VR, a spinout from Oxford University.

"I know that I wouldn't have been able to return to work if it wasn't for being on the trial. It's not a miracle drug, but it helps so much. It's important that people consider taking part in research."

Gulliver Waite

TREATING INSOMNIA: SLEEPIO

Insomnia costs the UK economy an estimated £40 billion per year in reduced productivity and increased healthcare costs[2]. Sleepio delivers fully-automated cognitive behavioural therapy for insomnia, through a smartphone app, available via self-referral without prescription or appointment. Sleepio was the first-ever digital treatment recommended by NICE in 2022. Sleepio has been found to be both clinically effective and cost-saving, proven to help 76% of patients achieve clinically significant improvement in insomnia and save 1.6 GP appointments per patient. It also improves workplace productivity. In Scotland, Sleepio is already nationally funded on the NHS and has been accessed by 60,000 patients.

[1] World Health Organization (2017). Depression and Other Common Mental Disorders Global Health Estimates.

[2] RAND Europe (2016). Why Sleep Matters – the Economic Costs of Insufficient Sleep.

DEMENTIAS AND OLDER ADULTS

Around one million people are living with dementia in the UK, a number expected to rise to 1.4 million by 2040[1]. One in two of us will be affected by dementia in our lifetime, either as carers or by developing it ourselves.[2]

The estimated economic impact of dementia in 2024 was £42.5 billion, which could more than double by 2040, a significant proportion of which is the cost of care.[1]

Many different diseases cause dementia, the most common being Alzheimer's disease. It can also be associated with other degenerative brain conditions, such as Parkinson's disease or Amyotrophic Lateral Sclerosis (ALS).

More than 200 scientists and clinicians in Oxford are undertaking research on dementia, working alongside hospitals, patients, and industry partners, to translate growing insights into the origins and causes of the disease into effective treatment and prevention.

We are working to better understand the molecular, cellular and genetic mechanisms of dementia to enable early diagnosis and detection, as well as identifying risk factors to help prevent disease and slow cognitive decline. We are conducting drug trials and using data and machine learning to help find effective treatments. Our teams have been key to major recent breakthroughs in dementia research including:

- Finding an association between the new shingles vaccine 'Shingrix' and a reduced risk of dementia.
- Identifying key genetic, health and lifestyle risk factors, such as the impact of hearing loss and how wearing hearing aids could lower the risk of cognitive impairment.

Our teams are also driving forward innovative initiatives to accelerate the pace of research and developing ways to reduce waiting lists and clinic times, which will benefit patients and the NHS, as well as helping reduce the pressure on carers and the economy in the future.

Consultant clinic time reduced by 35%

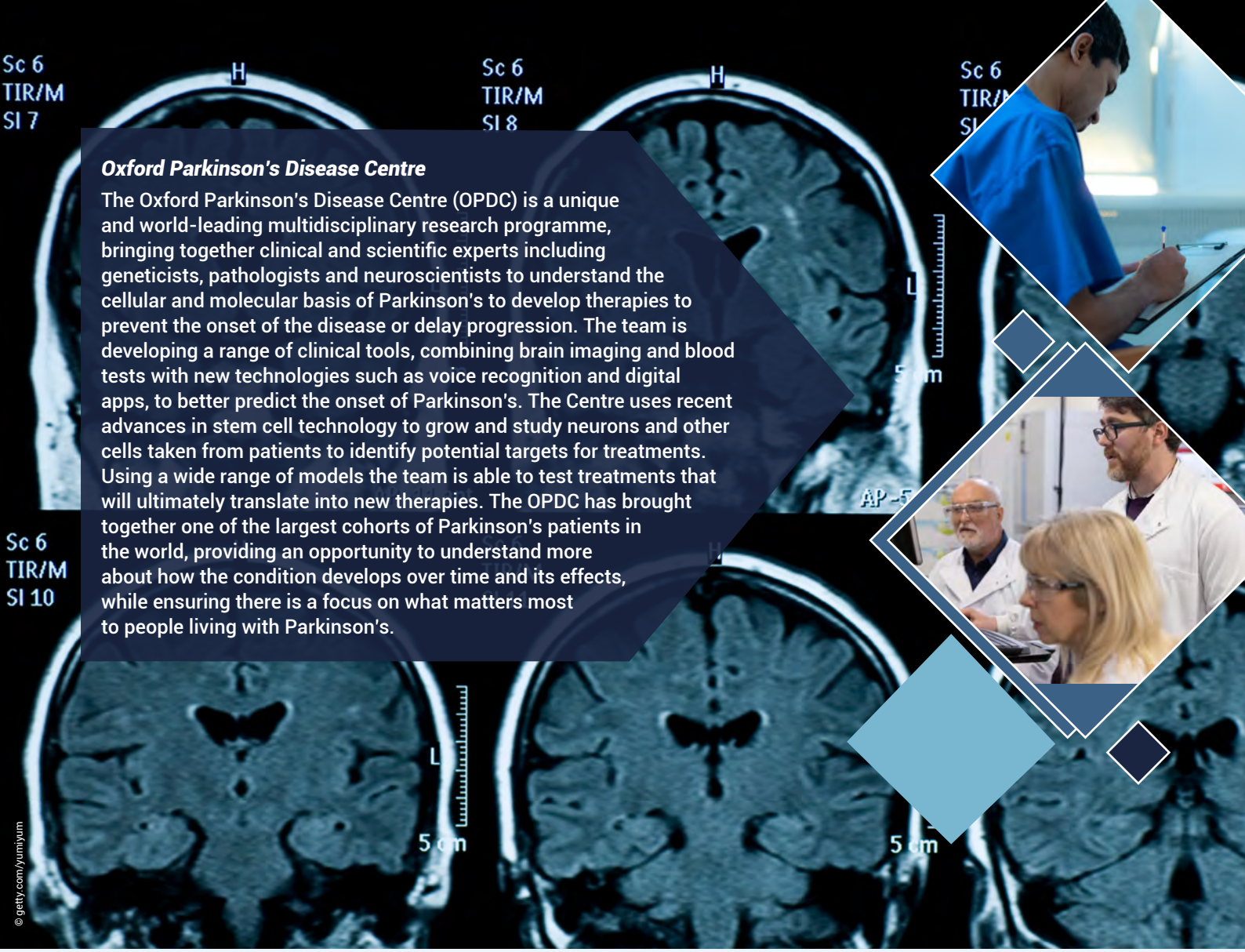
THE OXFORD BRAIN HEALTH CLINIC

The Oxford Brain Heath Clinic is an integrated research and clinical facility, dedicated to making brain health clinical services fit for the future.

Launched in August 2020 and led by Professor Clare Mackay and Dr Lola Martos, patients referred to the clinic are given high-quality assessments not usually available in routine NHS care and are also offered the opportunity to take part in research, which results in high consent rates (greater than 90%) and a highly representative dataset.

Co-designed with clinical teams, the Brain Health Clinic assessment, which includes using a range of diagnostic tools such as MRI scans and clinical questionnaires, increases confidence in diagnosis and has reduced consultant or clinic time by up to 35% by having all assessments in one place. It also offers the opportunity to better target new medications when approved.

[1] Carnall Farrar/Alzheimer's Society (2024) The Economic Impact of Dementia
[2] Besley S., Kourouklis D., O'Neill P., Garau M. (2023). Dementia in the UK: Estimating the potential future impact and return on research investment. OHE Contract Research Report, London: Office of Health Economics.



Oxford Parkinson's Disease Centre

The Oxford Parkinson's Disease Centre (OPDC) is a unique and world-leading multidisciplinary research programme, bringing together clinical and scientific experts including geneticists, pathologists and neuroscientists to understand the cellular and molecular basis of Parkinson's to develop therapies to prevent the onset of the disease or delay progression. The team is developing a range of clinical tools, combining brain imaging and blood tests with new technologies such as voice recognition and digital apps, to better predict the onset of Parkinson's. The Centre uses recent advances in stem cell technology to grow and study neurons and other cells taken from patients to identify potential targets for treatments. Using a wide range of models the team is able to test treatments that will ultimately translate into new therapies. The OPDC has brought together one of the largest cohorts of Parkinson's patients in the world, providing an opportunity to understand more about how the condition develops over time and its effects, while ensuring there is a focus on what matters most to people living with Parkinson's.

BLOOD TESTS FOR DEMENTIA

Dementias Platform UK's new project READ-OUT (REAl-world Dementia OUTcomes), based in Oxford, is a nationwide study to test the effectiveness and benefits of blood testing for dementia. Three thousand participants at 28 sites across the UK will be contributing to the study. A mobile unit will access hard-to-reach communities.

The researchers will assess the blood tests for a range of types of dementia and look at whether they can help detect disease at different stages of its development.

Funded by the Alzheimer's Society, Alzheimer's Research UK, the NIHR, Gates Ventures and players of the People's Postcode Lottery as part of the Blood Biomarker Challenge, the ambition is to generate evidence to enable blood tests for dementia to be rolled out in the NHS in the next few years.

"I was diagnosed with Mild Cognitive Impairment about a year ago. My mum had Alzheimer's, so it's something I've seen firsthand. The scans I had at the hospital showed that my condition is leaning towards Alzheimer's disease, but I haven't had that diagnosed officially yet. I'm getting quite forgetful, and I hope that taking part in this study might mean a faster diagnosis and access to treatments for myself and others in the future."

Stephanie Everill, 67, one of the first participants

SUPERCHARGING BRAIN AND MENTAL HEALTH RESEARCH

In Oxford, we're developing and harnessing innovative digital tools and cutting-edge technology to make breakthroughs and working to translate those scientific discoveries into effective treatments and prevention strategies.

With the breadth and depth of our research into conditions affecting the brain, ranging from anxiety and depression through to stroke and neurodegenerative diseases, our teams in Oxford are turning the tide on these most pressing of healthcare issues.

Warneford Park in Oxford presents an opportunity to supercharge these advances – bringing together leading experts from science, healthcare and industry in a world-class, purpose-built research environment that is fit for the future and the challenges we face.

Our powerful research capability and knowledge alongside modern facilities for brain scanning, laboratories and clinical trials, will speed up our understanding of, and develop new treatments for, a wide range of brain and mental health conditions that affect so many people, from young children to older adults.

As we enable patients to lead healthier, more independent lives in their homes and communities and return to work and society, it will relieve pressure on NHS waiting times, and improve economic productivity and growth.

If approved and funded, Warneford Park will not only benefit our local community, but will drive forward positive change nationally and internationally, positioning the UK as a global leader in the field of brain and mental health research.

FOR MORE INFORMATION ABOUT

WARNEFORD PARK

OXFORD HEALTH NHS FOUNDATION TRUST

THE UNIVERSITY OF OXFORD

Warneford Park

NHS Oxford Health NHS Foundation Trust

UNIVERSITY OF OXFORD