Geoffrey Jefferson
Brain Research Centre

Annual Report 2023/24

MANCHESTER 1824
The University of Manchester

NHS
Northern Care Alliance
NHS Foundation Trust

Working in partnership with the Manchester Academic Health Science Centre

Geoffrey Jefferson
Brain Research Centre

Foreword from our Directors - Professor's Stuart Allan & Andrew King

We are delighted to introduce the second annual report of the Geoffrey Jefferson Brain Research Centre (the 'Jeff'). It has been a very significant year with some notable highlights in the ongoing development of the Jeff, cementing its position at the centre of brain research in Manchester, with an increasingly high profile externally.

A key event this year was our inaugural showcase that was an unequivocal success, celebrating the innovative and potentially disease changing research across all our themed areas. It was attended by over 150 people, including academics and clinicians, leaders of key charities and industry, as well as existing and potential future donors.

Our ambitions to raise funds had a huge boost this year, with nearly £200K in charitable and philanthropic donations. For this, we are incredibly grateful to the generosity of the donors, as well as NorthCare at the Northern Care Alliance and the Development and Alumni Relations office at the University of Manchester for their support.

Significant external funding has been obtained by our researchers and exciting new collaborations are emerging. Collaborations between the nano-technology theme and our neurosurgeons sees the ground breaking first-in-human study of a graphene cortical interface just months away.

When we launched the Jeff, we stated that the aim was "to discover and develop new treatments and implement optimal care pathways that provide better outcomes and transform the lives of patients living with neurological diseases". It really feels like the last year has seen, by all measures, significant progress towards these high ambitions. We look forward to further success in the years ahead and hope you enjoy reading our report.

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www.gjbrainresearch.org

@GJBrainResearch

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Centre highlights from 2023/24

Engagement

Held our inaugural showcase in January 2024 with over 150 attendees

Publications

76 new publications and many under review

Charity

'Time to raise money for brain research' fundraising campaign launched in collaboration with NorthCare

Grant income

£10.6 million new grant income from applications and projects associated with the Centre.

Fundraising

£18,878 raised through patient driven fundraising

Funding

£155,000 received in philanthropic donations

Commentary on 2023-2024 objectives

Alongside our 2022-2023 annual report, we developed Centre specific objectives to measure progress throughout the year. These objectives sit alongside our 5 year strategy and ensure that we progress year on year towards our strategic objectives collectively as a Centre. We report below on progress against some of these objectives.

Establish financial stability of core posts

In order to maintain oversight of the Centre it is vital to ensure our core infrastructure posts are financially stable.

In 2023 we were successful in obtaining NorthCare charity funding to support the Centre Manager post and Centre Administrator post, which will continue for 2024-2025.

We continue to explore sustainable methods for funding these and other core posts.

The Jeff core infrastructure has benefitted from support through the Brain Inflammation Group Programme Manager and the Manchester Centre for Clinical Neuroscience's Project Co-ordinator.

These roles, although sitting outside of the core infrastructure, support the development of the neuroscience portfolio as a whole across NCA & UoM.

Increase banking of tumor samples, liquid biopsies and blood

Within this objective the key focus is on increasing general banking of tumour samples and associated blood, as well as the targeted collection of novel liquid biomarker samples. We are pleased to report positive progress has been made towards this ongoing objective.

The Centre Manager has taken a named regulatory oversight role for the Northern Care Alliance Research Collection (NCARC) for brain tissue, ensuring there are robust processes in relation to the collection and ensuring appropriate teams are involved in banking and accessing samples.

The NCARC delivery and operational management teams have successfully supported biobanking into rare tumour groups, specifically NF2, chordomas & vestibular schwannomas. Many samples have been for specific research projects and demonstrates the ability of the NCARC delivery team to increase our biobanking capabilities and make valuable contributions to ongoing and future research studies.

Throughout the year the NCARC team have worked incredibly hard to support the collection of novel liquid biomarker samples from brain tumour patients.

In this regard, NCARC have supported and successfully banked over 100 tear samples, kindly donated by patients with brain tumours and other neurological diseases. These samples will provide initial results to inform a wider project that could lead to earlier detection of brain tumours.

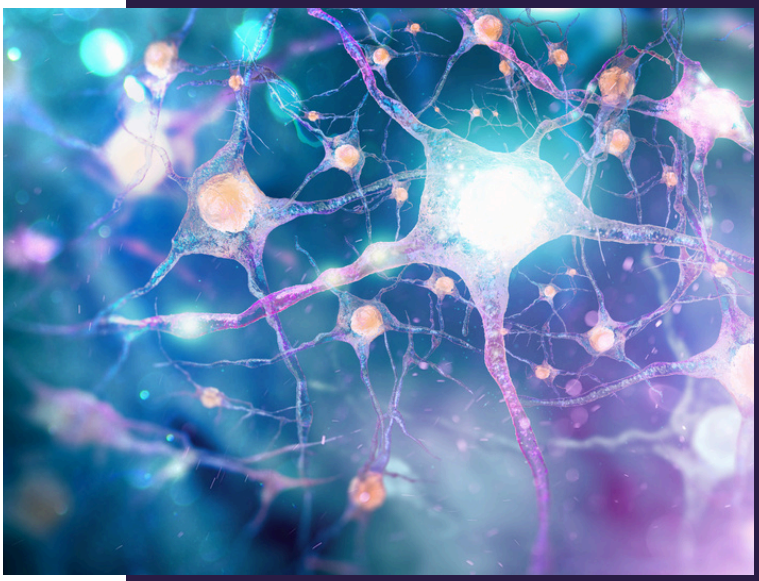
Continued investment in our tumour biobanking will facilitate further cutting-edge translational research to improve diagnosis and early detection of disease and also help in identifying new and emerging biomarkers from patient samples. All these developments have the ability to positively impact patient care.

Over the next year we look forward to further optimising our tissue/sample collection capabilities in partnership with biobanks across Greater Manchester.

Further develop charity & philanthropic funding

This year a main focus has been to move the Centre into a more financially sustainable position and to create funds to support pilot research projects across our themes, providing essential preliminary data to improve the chances of successful external funding.

We continue to work closely with colleagues in the Division of Development and Alumni Relations at the University of Manchester with the goal of securing major strategic funding for the Centre. You can read more about recent philanthropy donations that are important steps towards this goal in our financial summary section on page 16.



An exciting development this year has been the fantastic work done in partnership with NorthCare to support our fundraisers, engage corporate partners and launch a 'Time to fundraise for brain research' campaign. You can read more about our fundraisers in our financial summary section.

The 'Time to fundraise for brain research' campaign was launched late last year; with a series of posters co-developed by the NorthCare and Jeff team that highlight sobering statistics regarding the impact of neurological conditions that are our current main focus areas. The posters are being displayed across Salford Care Organisation to increase awareness and encourage donations and fundraising activities to support the Jeff.

Support development of a pre-hospital stroke device

EPSRC provided funding to support the development of a pre-hospital stroke device. The protocol and device was developed in house, led by the medical physics team and Dr Adrian Parry-Jones.

The project successfully recruited a research assistant to support recruitment, with 10 healthy volunteers recruited to date.

The project benefitted from Jeff infrastructure support to gain ethical approval and, working with the research management team, opened sites for recruitment in January 2024.

Recruitment is continuing, alongside continual development of the prototype device, to ensure it is providing the outcome measures required before moving into the patient recruitment phase of the project.

Obtain industry funding to look at health inequalities in advanced therapies in Parkinson's Disease

We are still working to achieve this objective and while doing so have expanded the focus to consider health inequalities more broadly within the Centre, and how we might address these. Health inequality is an area of increasing interest for many organisations, including NHS Trusts and charities. It is a major focus in the Manchester Biomedical Research Centre and the NIHR Applied Research Collaboration Greater Manchester (ARC-GM), and we are exploring how best to work in partnership with these networks to meet this objective.

Hold inaugural showcase event

Our inaugural showcase took place in January at The Hyatt Regency Manchester. The event was attended by over 150 delegates including academics, clinicians, students, people from industry, charities, and members of the public. The showcase was opened by Professor Dame Nancy Rothwell.

The showcase was an opportunity to demonstrate the incredible work from those in the Centre in the last year. A major aim was to ensure the agenda reflected the talented early career researchers across our themes, had an appropriate gender balance, and that talks were accessible to a lay audience with a focus on clinical application and potential for improving patient lives in the future.

Highlights included the exciting potential of graphene in biomedical applications including in glioblastoma, fresh approaches to drug discovery for brain haemorrhage, testing tears as a biomarker for brain cancer, and examples of research already making a difference to patients' lives. Ann Bamford, our patient representative, gave an inspirational talk on the importance of involving patients in the research process.

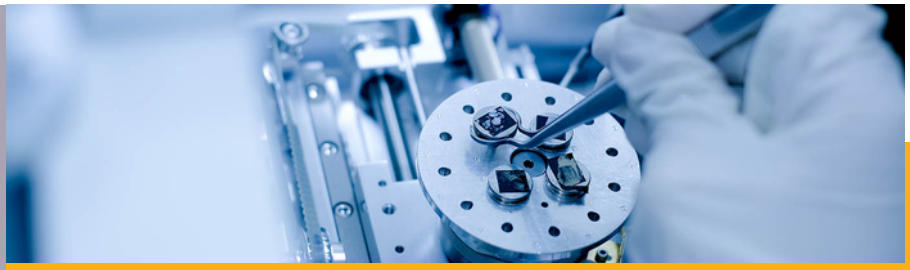
We had universally positive feedback from the showcase including from NCA and UoM executives. We were delighted to see that NCA's Chief Executive, Owen Williams made the showcase the focus of his Trust message that week. It was fantastic to receive such positive feedback after all of the effort put in by the team to support this event. We will look to hold a further showcase event in the future.

"It was amazing to hear about the work of those (young!) scientists but importantly the collaboration between service, industry and researchers. I really did enjoy listening to their work and as I enter the age where my likelihood of requiring healthcare increases, I am hopeful that I will be in good hands!"

Jude Adams - NCA Chief Delivery Officer

2023-2024 Highlights from our research themes

Nanotechnology



Dr Rob Wykes along with Professor Stuart Allan and Professor Kostas Kostarelos have been awarded a £1.3m MRC Project Grant. Dr Wykes, from our Nanotechnology for Brain Disease theme, will lead the project entitled "Evaluating the impact of spreading depolarisations, post stroke, in the awake brain using graphene enabled nanotechnology".

Waves of pathological brain signals called spreading depolarisations (SDs) are known to worsen stroke outcome. SDs can spontaneously occur following stroke and spread throughout the brain. As SDs spread, they depolarise brain cells resulting in almost complete breakdown in ion homeostasis. SDs can further reduce cerebral blood flow in areas of the brain that are already experiencing restricted blood flow, and recovery from SD is extremely energy demanding. A key problem when conducting research to design therapeutic strategies to suppress SDs is the lack of pre-clinical electrophysiological technology capable of detecting and mapping SDs with high spatiotemporal resolution.

The Wykes lab has successfully collaborated with partners on the EU Graphene Flagship, specifically the material scientists and electrical engineers at research institutes in Barcelona (ICN2 & CNM-CISC) who design and fabricate arrays of graphene-based neurophysiological probes. The team have demonstrated that these probes are capable of recording SDs across large areas of brain and are useful for studying pathological brain signals in intact brains. The researchers now aim to bring this cutting-edge technology to preclinical stroke research to gain a better understanding of the mechanisms of SD initiation and their involvement in worsening stroke severity.

This work will be a crucial first step in the maturity of this technology towards future clinical translation where they anticipate that it will greatly facilitate management of patients in the neuro-intensive care units. Furthermore, they aim to design a liposomal-based advanced therapeutic strategy that suppresses SDs to reduces stroke core expansion.

Neurorehabilitation

Thanks to a pump-priming award from the Jeff, Dr Claire Mitchell was awarded a fellowship through the Stroke Association and funding from the NIHR Research for Patient Benefit call.

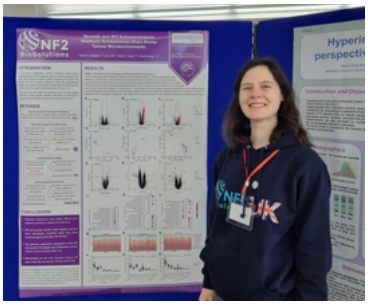
This funding has allowed Claire to work with the University of Queensland, Australia on several studies investigating speech recovery after stroke. Firstly, the COS-Speech study aimed to develop a core outcome set for speech recovery following stroke. The team developed two videos, one to explain the study, and one to demonstrate the results . Both videos were co-designed with the team's Patient, Carer and Public Involvement and Engagement (PCPIE) group HEARD (Healing, Empowering and Recovering from Dysarthria group) who also contribute to blog posts and other dysarthria studies.

The Speech after Stroke recovery study (SAYS) aims to progress the work of the COS-Speech study and will follow-up stroke survivors for 18 months post-stroke. The aim of this study is to learn what stroke survivors think of the assessments post-stroke and develop an understanding of speech recovery and the impact of dysarthria on everyday life. Recruitment for this study started in 2023, with the first patient recruited in October 2023. The study is longitudinal and will continue to 2025 with follow-up in 2026, with the aim of recruiting 200 stroke survivors with dysarthria.

Brain tumours

Grace Gregory our NF2 BioSolutions PhD student, recently accepted an invitation to join the Board of Trustees for NF2 BioSolutions UK & Europe. The charity funds vital research into rare disease NF2 – related schwannomatosis and has had a strategic partnership with the Centre for the last 2 years.

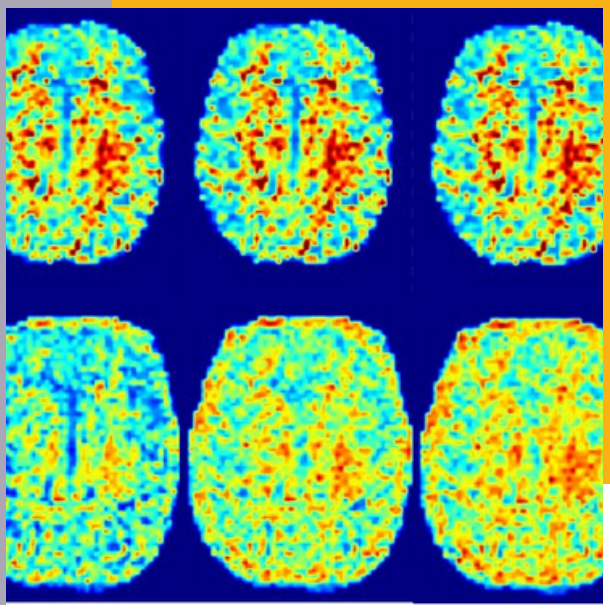
Grace has worked closely with the charity since she began her PhD in 2021, with her doctoral studies focusing on how inflammation may progress brain tumour growth in patients with NF2.



As a Trustee, Grace will actively contribute to the charity's goals by participating in board meetings, shaping policies, and recognising prospective donors while using her expertise to identify advantageous research opportunities and advocate for people with NF2. In addition to her new role as a Trustee, she is committed to science communication and the NF2 community, having set up and written for the NF2 BioSolutions blog.

This continued partnership shows our ability to expand and strength our network and collaborations across our strategic partnerships. NF2 BioSolutions have now committed to fund an additional PhD student from September 2024, expanding our brain tumours research team.

Imaging



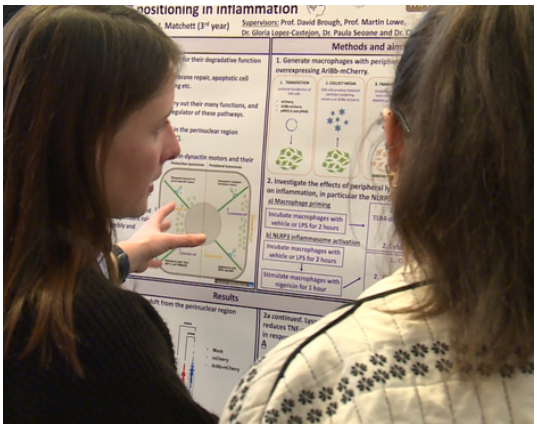
This year, the Imaging team has showcased its cross-cutting nature, supporting studies from the disease-specific themes and demonstrating the added value of advanced imaging techniques.

The Stroke IMPaCT project, [highlighted in the 2022-23 Annual Report], has now recruited 64 participants to the imaging-focussed arm of the study, allowing extensive evaluation of blood-brain barrier dysfunction and microstructural changes associated with neurodegeneration as a marker of cognitive decline. The work on this project has now led to further applications of these techniques in other brain conditions such as traumatic brain injury, a growing research area at Manchester.

The team has implemented advanced imaging metrics in the PreOperative Brain Irradiation in Glioblastoma (POBIG) trial, to improve the ability to detect radiation-induced change in tumour growth. These specific advanced scan sequences have been developed with PhD student and physicist Aisling Fothergill and theme lead Laura Parkes, and will now be incorporated into a new MERIT study, which will allow patients with brain tumours to receive an additional 15 minutes advanced MRI scan time at end of their routine clinical scans. This will allow the researchers to test and further develop the MRI methods for monitoring brain tumours. Critically, this will allow patients to take part in research without having to return for additional scans.

Brain Inflammation

In the last year, the Inflammation theme has been strengthened by two large prestigious funding awards, submitted with the support of the Centre last autumn.



The University of Manchester has been awarded an impressive £4M over the next 5 years as part of a British Heart Foundation Centre of Research Excellence Award. Within this award, an entire theme is dedicated to investigating inflammatory drivers of cardio- and cerebrovascular disease, recognising the strength of this area in Manchester. The award will support and build capacity within inter-disciplinary teams and investigate therapeutic strategies for these diseases.

British Heart Foundation

UoM is the lead institute of a prestigious Alzheimer's Society-funded Doctoral Training Centre award. A total of £2.9M has been awarded to fund the training and development of 29 PhD students over the next 8 years, supported by match funding from UoM and other institutions in a newly established network including UoM, the University of Edinburgh, Imperial, and St George's University of London.This research will investigate the vascular and immune contributions to dementia, using a range of cutting-edge techniques and sparking new collaborations across the UK.

VIDA
Vascular and Immune contributions to DementiA

Alzheimer's Society

These centre awards both provide a dynamic environment to train the next generation of researchers, from PhD level to intermediate and senior fellows and clinical academics. A key aim for the GJBRC going forwards is to support these centres by driving philanthropic support to fund add-on PhD students and targeting grant applications to the British Heart Foundation.

Brain pathology

The Manchester Brain Bank (MBB) were integral in the publication of several papers this year, most notably in Nature and Lancet Neurology. The Nature publication details new work in frontotemporal lobar degeneration showing that the particular folding of certain proteins may help with the characterisation of different neurodegenerative conditions. In the Lancet Neurology, samples from the MBB were collected to support a study into Pick's disease (a form of frontotemporal dementia).

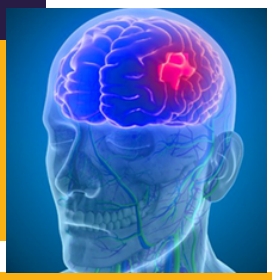
The Manchester Brain Bank are also forging new relationships with industry. Professor Federico Roncaroli, Dr Andrew Robinson, and the team have secured an exciting collaboration with Proteintech Europe. This pilot project will involve MBB validating antibodies related to neurodegeneration in post-mortem brain tissues. This consultancy will utilise the expertise of MBB in neurodegenerative diseases, in particular frontotemporal degeneration, to analyse results and assess suitability of the antibody. This will aid Proteintech in developing relevant and validated antibodies for use in wider neurodegenerative disease research. A successful pilot has the potential to lead to larger collaborations with Proteintech.

Manchester Brain Bank on the BBC

Roger Johnson and his team at the BBC paid a visit to Manchester Brain Bank to discuss our new collection of brain donations from individuals who passed away with a brain tumour and to highlight the use of such donations in future neuro-oncology research. The footage featuring MBB staff was shown as part of a piece that BBC North West Tonight and BBC Breakfast were doing on the legacy of Laura Nuttall.

proteintech

Stroke

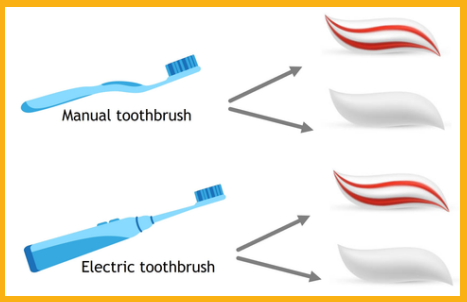


Professor Craig Smith, our theme lead for stroke, presented the findings from the CHOSEN trial at the UK Stroke Forum in Birmingham. CHOSEN (chlorhexidine or toothpaste, manual or powered brushing to prevent pneumonia complicating stroke) is a multicentre, randomised clinical trial, funded by the NIHR and led by Professor Smith. CHOSEN aimed to determine the feasibility of different oral healthcare treatments, supported by staff education and training, to prevent pneumonia in UK stroke unit care.

Pneumonia affects around 1 in 12 people after a stroke and increases their chances of death and disability. Poor oral health increases the risk of pneumonia, as inflammatory material and bacteria in the mouth can enter the lungs when there are swallowing problems (dysphagia). Improved oral healthcare is therefore a plausible approach to preventing pneumonia.

The trial team developed an online training and education program to help stroke unit staff deliver the oral healthcare treatments to people after a stroke. In the main feasibility trial, 101 people admitted to hospital within 24 h of a stroke and with dysphagia were enrolled.

Participants were randomly allocated to 1 of 4 oral healthcare treatments as follows: Chlorhexidine gel (with either a powered toothbrush or a manual toothbrush) versus non-foaming toothpaste (with either a powered toothbrush or a manual toothbrush). Recruitment of participants to the feasibility trial completed in January 2023 with final follow-up in April 2023.



There were no safety concerns overall, or between the different oral healthcare treatments. In exploratory secondary analyses, there were no differences in clinical outcomes between the different allocation groups.

Professor Smith and the team now anticipate undertaking a much larger phase 3 trial across the UK to test cost-effectiveness of the oral healthcare treatments, which would change clinical practice.

Patient Carer Public Involvement and Engagement

Ensuring the needs of patients are central to our research portfolio is a strategic objective in which the Centre is built upon. PCPIE input is vital to ensure we are truly capturing the needs of the population living with neurological conditions.

In our first year we appointed Ann Bamford as our PCPIE representative in our core team. Ann is key in driving forward this strategic objective, with the support of core Centre infrastructure. Within the last year Ann has been pivotal in ensuring we are on track to deliver our key achievements within this strategic priority.

Over the last year Ann has devoted time to scoping out and bringing together a panel of stroke survivors to form our Stroke PCPIE group. Ann takes time to meet each individual, explain the value of their voice and ensure we can accommodate any specific requirements with ease. We held our first Stroke PCPIE meeting in October 2023, this was a great opportunity to bring the group together face to face, listen to each of their stories and start to think about areas of commonality that may drive forward our research portfolio.

In March we held a vestibular schwannoma patient day. This was organised and run by the skull base specialist nurses, with a dedicated section of the agenda for research. This was an opportunity to introduce the Centre to the patient population and demonstrate some of the ongoing work, looking to improve patients' quality of life following their diagnosis. The event was a great success, with many patients signing up to ongoing research studies. The next steps would be to replicate this patient day across some of our other themes and look to bring together interested patients to drive forward the research agenda within that theme.

Patient driven fundraising has certainly formed a key part of our income stream this year. We have worked hard with NorthCare to facilitate patient fundraising and this is demonstrated by our incredible patient fundraising total. You can read more about our patient fundraising stories on page 17. We have also launched our 'time to fundraise for brain research' campaign with NorthCare, to increase the profile of the Centre and encourage further patient driven fundraising.

2022-2023 Financial Summary

As we move towards achieving self-sustainability, a vital part of this is philanthropic donations and patient fundraising. These funds can be used strategically across our themes for projects which have the ability to have high impact or provide return on investment. The last year has been hugely successful in bringing in strategic income via these avenues and as always we are grateful to our patients and donors.

In 2023 the centre was awarded £125,000 in strategic research funding from the Edward and Victoria Bonham-Carter fund.

This flexible research funding enables us to seize new brain research opportunities and invest strategically in resources to support the success of the Jeff.

Thanks to this generous donation we are exploring exciting avenues in dementia, stroke & brain tumours through strategic pump priming awards. You can read more about these individual awards on page 18.

Since the launch of the Jeff in 2021, we have made great strides in developing our strategy and creating an identity which firmly embeds the Jeff within the translation research landscape in Manchester.

Further major funding and increased philanthropic support will be a major focus over the next phase in our development, allowing us to continue to push forward translational research and improve patient outcomes.

Philanthropic donations to the Centre

Laura's Legacy

The parents of Laura Nuttall, an inspirational alumna who died of brain cancer in May 2023, have made a generous gift of £20,000 in memory of their incredibly special daughter.

Mark and Nicola Nuttall have donated £20,000 in Laura's name to the Centre following our inaugural showcase.
Laura studied Politics, Philosophy and Economics at the University of Manchester, graduating in 2022. Four years earlier, Laura had been diagnosed with Glioblastoma Multiforme – an aggressive and incurable form of brain cancer. She was given only 12 months to live.
Laura began the standard treatment protocol – three months of radiotherapy and a further 12 months of chemotherapy. Her family discovered an innovative new treatment in Germany, and with the help of donations from friends, family and an online fundraiser, Laura was able to start the immunotherapy.
Laura returned to her studies, joining The University of Manchester whilst continuing chemotherapy and travelling to Germany for treatment. Despite these immense challenges, and the added stress of the Covid-19 pandemic, Laura graduated with a 2:1. She attended her graduation ceremony accompanied by her enormously proud mum Nicola, sister Grace, and dad Mark.

Whilst balancing her studies alongside her gruelling treatment for cancer, Laura displayed incredible positivity and embarked on an extraordinary bucket list: meeting Michelle Obama, driving a London tube train, and commanding a royal navy warship.
Laura was a Young Ambassador for The Brain Tumour Charity, campaigning to spread awareness of brain tumour symptoms and encouraging anyone with concerns to seek medical advice. She was passionate about changing the future for those also affected by brain cancer.
Laura died in May 2023, five years after her diagnosis. Her parents, Mark and Nicola, are now continuing Laura's legacy. The Be More Laura Foundation was launched under the umbrella of Prism The Gift Fund (reg charity number 1099682). The Foundation aims to support researchers as they search for better treatments and ultimately a cure for glioblastoma.
Brain tumours are the biggest cancer killers of children and adults under 40, yet in the UK, this deadly cancer receives only 2% of the total cancer spend. The Be More Laura Foundation works with larger charities such as The University of Manchester, The Brain Tumour Charity and Brain Tumour Research to raise more awareness around the condition and to tackle the issue of underfunding.

Patient fundraising stories

We are incredibly fortunate to have so many patients and staff who want to raise money to fund brain research. Last year we raised over £5,700 in patient fundraising, this year we have managed to raise a staggering £18,878 in patient fundraising, tripling last year's total. We are, as ever, grateful to our patients and staff who have taken on many challenges to support us, and NorthCare for supporting our patients to raise money for the Centre.

Vicky & Mark Lewis

In September 2021 Vicky was diagnosed with a vestibular schwannoma. Her life was changed dramatically and she was unable to work, drive or continue with her daily life, due to her symptoms. Vicky was referred to Salford Care Organisation. After further scans and appointments it was decided that Vicky would need surgery to remove this. Vicky was operated on by Professor King, Jeff Centre Co-Director, removing 99% of the tumour. Vicky was able to return to work and has this year gone to University to complete her nursing degree.

Vicky and Mark wanted to show their thanks and appreciation to Prof King and decided to take on various fundraising activities for the Jeff. Mark decided to take on a 24 hour continuous bike ride, travelling an incredible total of 463.35 miles, raising a total of £2,538.

"Vicky & Mark's fundraising efforts will allow us to continue our research into the treatment and management of brain tumours like Vicky's, which will have a huge impact on patients for years to come"

Prof Andy King, neurosurgeon & GJBRC Co-Director

Vicky also wanted to raise money for the Centre and decided to host a charity auction night in Wrexham in June 2023. Among the prizes donated was a signed Aviation Gin bottle from Ryan Reynolds after Vicky had bumped into him at the Wrexham city club shop, other prizes included various vouchers, a weekend away and a signed Liverpool shirt from Jurgen Klopp. Prof King travelled down to Wrexham to open the event and Vicky raised a staggering £9,530 for the Centre.

Firewalk

Not content with her already incredible fundraising efforts Vicky decided to pull together a team of her friends and family to take on a firewalk in February 2024. Vicky managed to get together a team of 28 friends and family to walk over burning hot coals. They raised a total of £3,312 for the Centre and created some unforgettable memories!

Berlin Marathon

Three Salford Royal Hospital based neurosurgeons bravely took on the Berlin Marathon on Sunday 24 September to raise money for the Centre.

Jane Halliday, Daniel Holsgrove and Julian Evans travelled to Germany for a three-day trip and raised an amazing £2,498 for future research into rehabilitation, new drugs, parallel therapies and surgery alternatives, for people with brain tumours or who have suffered strokes. The trio were passionate about raising funds for these areas, knowing they make a huge difference to their patients beyond their surgery.

A massive thank you and well done from everyone at the Centre.

GJBRC strategic funding awards

Throughout the past year we have been fortunate enough to have been provided generous philanthropic funding. Following discussions with our strategy board it was decided that we would open a funding call, for projects up to £10,000 which align with some of our key strategic priorities. We awarded these pump priming awards at our showcase earlier in the year. Below is a brief summary of the current pump priming projects.

£9,994 awarded to Claire Mitchell & Ann Bamford

To support recruitment and retention of the underserved aphasia population within the dysarthria study, Speech After Stroke RecoverY Study (SAYS)

Dysarthria is a disorder causing difficulty speaking due to muscle weakness and is the most common form of speech impairment after stroke. The SAYS study is a long-term study of dysarthria following stroke and aims to investigate how speech may recover over time. However, many patients also suffer from aphasia along with dysarthria. Aphasia is difficulty with language due to damage to the brain, rather than the muscles related to speaking. Patients with aphasia can have problems understanding or expressing language. There is a significant under-representation of patients with aphasia in all research, however this is particularly relevant when studying speech recovery after stroke.

The strategic award will support a research fellow/SLT and two PCPIE meetings over the next year. The project started in March 2024 and the main aim is to improve inclusion of people with aphasia to the SAYS study. The funding for this project will allow the team to explore reasons for the under-representation of those with aphasia from research and implement new recruitment strategies to improve inclusion in recruitment, this will help to inform other projects and will be vital for ensuring patients are central to our research.

£10,000 awarded to Irene Rebollido Pedrido & Petra Hamerlik

D-2-HG detection in tear fluid of patients with IGH1/2-mutant gliomas: method development.

The team want to use their funds to develop a protocol for detection of metabolites indicating brain cancer in tear samples of preclinical mouse model using two different methods. To achieve this, they will work with George Taylor and Alex Casson, both at the University of Manchester. The results from this early study will hopefully inform a wider project with the wider ambition of detecting brain cancer earlier leading to better patient outcomes.

Brain cancer is often diagnosed late and is notoriously resistant to existing treatments and therapies leading to poor patient outcome. Along with developing new treatments, there is an urgent need to improve early detection and diagnosis and to be able to monitor response to therapy using minimally invasive approaches. Currently, brain biopsies are used to confirm diagnosis of brain cancer, but this is highly invasive and not suitable for early detection. Other forms of biopsy such as blood, CSF, urine, and saliva show very low sensitivity. Tears may present a more sensitive and easily accessible liquid biopsy which can be readily collected for assessment of early diagnosis.

£5950 awarded to Andy Greenhalgh & Tom Grundy

Capturing, diagnosing, and evaluating those at risk of Chronic Traumatic Encephalopathy (CTE) type dementia - proof of concept pilot study of retired professional rugby players

Currently, help is only available for those with dementia once symptoms have begun to show, however retired professional rugby players have a higher chance of developing dementia due to the ongoing head trauma caused by the sport. Andy and Tom are hoping to develop a service for individuals who suspect themselves to have early signs of dementia with a focus on those retired from a career in professional rugby. This funding will help to assess the feasibility of such a service which will eventually be funded by the charity Rugby League Cares, who the team already have an existing partnership with.

The project, which started in March 2024, will recruit five retired elite athletes who are concerned about their brain health. Multiple assessments will be carried out with the participants with the funds being directly used for clinician and neuropsychologist time and for advanced MRI scans. This project will hopefully provide a framework for a service which will provide an early diagnosis, more timely treatment, and earlier enrolment into research studies for those concerned with their brain health.

This will be invaluable not only to the patient's health but to the wider NHS by potentially reducing treatment costs and developing better treatment and care from research studies.

Rugby League Cares

Five-year strategy 2023-2028

Strategic priorities and key outcomes

Create an identity for translational neuroscience research in Manchester

Raise the profile of existing research excellence in translational neuroscience. Support emerging themes.

Ensuring the needs of patients are central to our research

Establish a patient-led research design panel. Enable and support patient-driven fundraising.

Provide a network for clinicians and scientists, supporting rapid translational research

Facilitate bed to bedside collaboration. Build capacity in translational research.

Deliver enabling core infrastructure to increase research output and excellence

Implement a funding model with key strategic partners. Secure sustainable infrastructure funding.

We hope this years annual report demonstrates the fantastic progress we are making towards our 5 year strategic objectives and we look forward to demonstrating further success in our future reports.

As always we would like to thank our fundraisers, patients and staff who are continuously committed to improving brain health through the Jeff.