

## Wouldn't it be great if we could tell who was likely to develop Alzheimer's Disease?

BDR specialises in supplying human brain tissue to researchers. Its added value is the data which goes with that tissue. That's what really sets us apart. During the pandemic, researchers have continued to apply to access this valuable resource. Since March 2020, we have received on average one application each month. Around a third of these are requests to access **genetic data**.



Dr Keeley Brookes, from Nottingham Trent University, leads the BDR DNA bank and genetic analysis. She extracts DNA from donated tissue and blood and explores it to detect changes. This genetic data is available for all researchers to use in their investigations. In her own exciting and promising studies, Dr Brookes is looking at how we can add together someone's genetic risk factors and turn them into a measure of how likely that person is to develop Alzheimer's disease. **This development could lead the way to early identification of people at risk of developing Alzheimer's disease. Interventions could then be made to prevent, or at least delay, the symptoms occurring.**

## Looking to the future means personalised medicine from more accurate diagnoses

To treat or prevent neurodegenerative diseases like dementias, researchers have used human brain tissue to learn more about diagnoses. Dr Kirsty McAleese (pictured right), from Newcastle University, has recently published an exciting new paper using the large and growing number of brain donations from the BDR programme. Together with other researchers, she investigated the multiple diseases (pathologies) which are found in the brains of older people and especially in those with dementia. Dr McAleese also used BDR assessment data to look at changes in memory and thinking over time and compare these with changes in pathology.

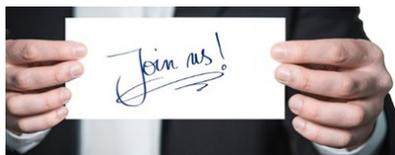


The paper was published in 2021 in *Alzheimer's and Dementia* [<http://doi.org/10.1002/alz.12291>]. This is the world's leading journal in the dementia research field. The paper confirmed the findings from other smaller studies. **The majority of people with dementia have more than one brain disease contributing to their dementia.** Alzheimer's disease was, as expected, the commonest. The researchers also found Lewy body disease in about a third of people with dementia. Frontal lobe pathologies were surprisingly common in this group of older people (average age 83), occurring in about 7% of the dementia population. However, vascular disease was much less common than expected.

The new and important finding from this work was the evidence that even small amounts of extra pathologies have a big impact on the rate of decline in people with dementia. Individuals **with more than one pathology declined from mild cognitive impairment to dementia twenty times more quickly as compared to those without such additional pathology.**

Even these smaller amounts of vascular, Lewy body or frontal diseases have a major importance for patients. As drug therapies become available, **being aware of a person's exact diagnosis will help to create personalised, targeted treatment regimes.** This already happens for people with some cancers and has led to greater success in treating those cancers, and the same should be true for dementia.

# What's happening in your local BDR?



We hope that you have enjoyed the online engagement events of recent months. We started the series with our Director, Professor Thomas at the BDR Centre in Newcastle followed by presentations from the Centres in Cardiff, Manchester and Bristol and were delighted by the number of people who joined us for the live presentations. We hope that you found them both informative and enjoyable.

In autumn this year, the Oxford BDR Centre team will stage an online event. You'll be able to find the details for this event the details on the BDR website nearer the time.

If you missed any of the events so far, you can access recordings by going to the website at <https://bdr.alzheimersresearchuk.org/brain-donors/events/>. Anyone who has already registered to access these events will be notified automatically regarding the date, time and Zoom link of upcoming presentations. If you haven't already registered, you can do so at link given above.

**KING'S**  
College  
**LONDON**

## The London team spoke with their participants to find out what encouraged them to take part in the BDR study and about their experience so far

*"I was motivated to join the study after my husband was diagnosed with dementia as we were told we could volunteer to take part and have face-to-face meetings. I felt it helped us both as we were doing something and contributing towards research. My late husband had dementia and I think he enjoyed talking to people who understood what he was going through, because within a group of friends at times he felt ignored and neglected particularly in the later stages of his dementia which was hard for me to witness. That is why having face-to-face visits were so comforting to see him speak with someone who understands. Even now, I know and have friends who seem they may have some memory problems and I know how to speak to and approach them." – Anna Sladden*

*"My involvement with BDR began after my late husband died. He had Alzheimer's disease for many years, and his Neurologist had suggested that he take part in a research programme. He readily agreed. He had left instruction that his brain and spinal cord was to be donated to the Brain Bank after his death, for research purposes. I carried out his wishes. During this time, I discovered that I, too, could be a donor and participant even though I do not have a Dementia. I duly signed up. I look forward to my annual assessment with the study coordinator. There are few people that get the opportunity to test out the quality of their memory in a formal but comfortable atmosphere. I enjoy being part of this study, in the hope that my involvement, however small may help the researchers to a breakthrough." - Marjorie Nesbitt*

*"Initially, I came across the BDR study when I volunteered in the Maudsley shop with my husband. Ever since then, I have been taking part in the annual assessments for over many years. I am interested in continuing my participation as I have experienced people I know, be diagnosed with Alzheimer's disease." - Margaret Wimble*

*"My father was diagnosed with Alzheimer's Disease when he was 82. I joined Alzheimer's Society, and volunteered for various research projects, because I did not want other people to suffer as my father did; and I hoped that the research would lead to a cure. I have been curious to discover how my brain is working as I get older - I am now 84. I have left my brain in my Will for research. I am always pleased to "pass" the tests which I have been given over the years of this research project. I wish the researchers every success to find a cure for dementia and treatment to alleviate" - Paul Gray*

The team at KCL would like to take the opportunity to say thank you to all of our participants for their ongoing support and to those participants above who allowed us to share your opinions and your names