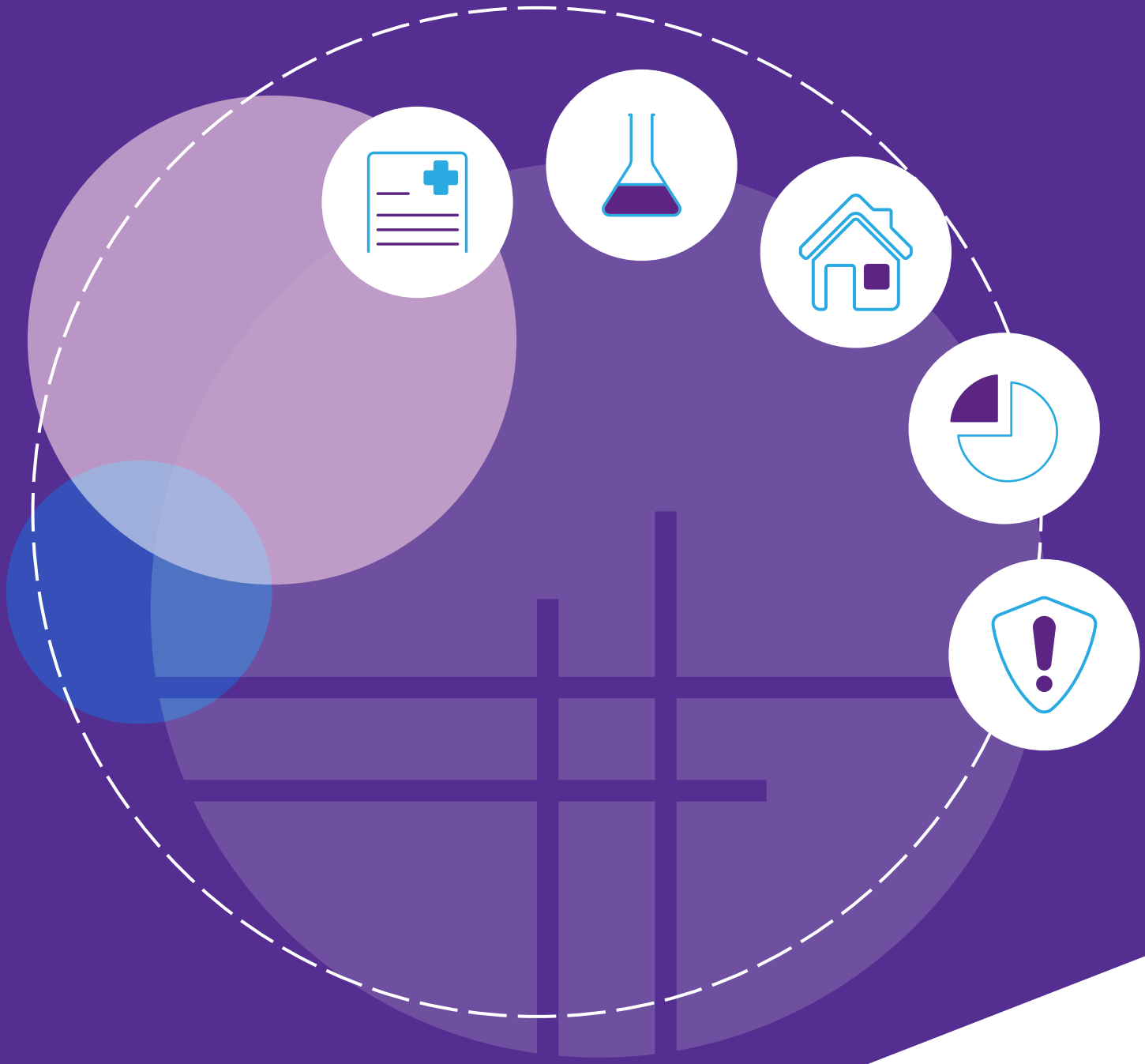
Scottish Dementia Research Consortium

Annual Report 2022/23



Alzheimer Scotland | Scottish Dementia Research Consortium

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Welcome from Chair

Dr Terry Quinn

As I look back at Scottish dementia research in 2022, I lapse into Dickensian prose:

'...It was the best of times, it was the worst of times...'

Certainly, there was a lot to be positive about in 2022. Publications from large randomised controlled trials suggested that disease modification in Alzheimer's disease may be possible and that we could have our first new drugs for managing dementia in almost two decades. The importance of dementia research was recognised by major funders with announcements of substantial new investment through schemes such as the Dame Barbara Windsor Mission and, here in Scotland, the Scottish Funding Council's Brain Health Advanced Research Challenge scheme. Implementation of research was also a focus of activity last year, and many members of SDRC contributed to the Scottish Intercollegiate Guideline Network (SIGN) Guideline on Dementia. This Guideline will help ensure high standards of evidence-based care across all stages of the dementia journey.

Yet, despite all this positive news, it could be argued that there has never been a more difficult time to be working in dementia research. The shadow of COVID-19 still looms over the research landscape and, as can be seen in our report, research activity has not yet returned to pre-pandemic levels. Picket lines outside Universities and Hospitals are a reminder of the ongoing problems with pay and working conditions in both the academic and clinical worlds. In this context, it is no surprise that talented scientists and clinicians who are early in their career are wary about pursuing dementia research, or indeed any aspect of academia.

I believe that better times are ahead of us, but while we as a dementia community weather the current storm, I would like to think that the SDRC can help make things a little easier. Here are some ways we hope to do this between now and our next annual report. We have always had a focus on supporting early career researchers, and this is something we will not only continue but will enhance going forward. So, look out for new prizes and new funding announcements at this year's SDRC conference. Tackling dementia is bigger than any single lab, University, or society. The SDRC have always been proudly collaborative and over the next few months we look forward to strengthening our links with all the key stakeholders in the dementia research space. Staying connected and supporting one another is more important than ever, and I want to say a massive thank you to everyone that has contributed content to our website, social media and webinar series. If you found these resources useful, you will be pleased to hear there we plan even more content over the next few months. If you didn't find them useful, then let us know why. We need feedback from our members to help us improve what we offer.

Since taking on the role of SDRC chair, I have been continually impressed by the enthusiasm, commitment and passion of our members and the broader Scottish dementia research community. It is your ideas and energy that make SDRC. I will end by paraphrasing Dickens – '...please Sirs, we need some more...'

Introduction

Welcome to the Scottish Dementia Research Consortium Report 2022/23.

The purpose of this report is to showcase and celebrate Scottish brain health and dementia research that has taken place over the past year.

The first section of the report provides an update from each of the five SDRC themes: Diagnosis, Fundamental Science, Informatics, Living with Dementia and Prevention. This section, authored by SDRC Executive Committee Members, presents recent research success, achievements encompassing all disciplines and perspectives of research, which features submissions from our SDRC membership. Given that a key aim of the SDRC is to promote collaboration in research, we have, throughout the report, highlighted examples of people from different academic disciplines, locations and experience working together.

In this 2022/3 report, we put a lot of emphasis on our Early Career Researcher (ECR) community. Thank you to the ECRs who have contributed to the ECR spotlight. We also highlight the funding and support available to ECRs, including the successful Scottish Neurological Research Fund and marking the launch of the Alzheimer Scotland Student Research Programme, which will fund its first students later in 2023.

We have an update on SDRC activity from the past 12 months, including a summary of our Annual Conference 2022 and the introduction of our Special Interest Group relating to how technology can support people affected by dementia.

Like every year, we have published the results of our research mapping of all dementia and brain health research in Scotland from 2022. We have collected information on grants awarded, papers published, and extent of collaboration with researchers outside of Scotland.

This report is also full of updates in the dementia research community from our friends and partners including Alzheimer Scotland, Brain Health Scotland, Neuroprogressive and Dementia Network and ENRICH.

About the Scottish Dementia Research Consortium

The SDRC, supported by Alzheimer Scotland, is a network of dementia researchers, policy makers and people living with dementia from across Scotland. Our work celebrates and supports all dementia and brain health research taking place across the country.

We do this by highlighting and championing ongoing work as well as nurturing growth. We also promote collaboration by encouraging researchers within and across institutions and disciplines to work together, and to help them gain a better understanding of each other's work.

The SDRC was formed in 2013 and currently has over 800 members, representing a network of researchers, policy makers and people living with dementia across Scotland. The following are some examples of what we do for our members:

- Organise learning and networking events.
- Produce blogs featuring researchers who discuss their work and share experiences.
- Conduct our own research and producing publications which analyse the dementia and brain health research landscape in Scotland.
- Support researchers, particularly early career researchers, by providing personal and professional development opportunities.

SDRC membership is free and open to all. If you are not already an SDRC member, details of how to join us are at the back of this report.

SDRC Executive Committee

Dr Terry Quinn (Chair)

Terry holds the post of Reader and Honorary Consultant Physician, School of Cardiovascular and Metabolic Health, University of Glasgow. He combines his research with clinical work and teaching.

Terry has a broad research portfolio, including coordinating editor of Cochrane Dementia and leading the new national Brain Health ARC. He is passionate about evidence-based practice and raising standards in clinical research.

Dr Jennifer Macfarlane

Jennifer is a Clinical Scientist based at Ninewells Hospital, Dundee and Director of SINAPSE (Scottish Imaging Network: A Platform for Scientific Excellence) a research pooling group which brings together clinical and academic expertise in imaging research throughout Scotland, encouraging a multidisciplinary, collaborative and supportive approach to tackling Health and Wellbeing.

Her interests include functional neuroimaging and breast magnetic resonance imaging (MRI).

Prof Debbie Tolson

Debbie is the Alzheimer Scotland Professor of Dementia and Director of the Alzheimer Scotland Centre for Policy and Practice at the University of the West of Scotland.

As a registered nurse she is committed to practice-based research and best research involvement practice. Current studies include advanced dementia, family caring and living with young/late onset dementia.

Dr Leah Macaden

Leah Macaden is a Senior Lecturer in Nursing at the University of Edinburgh and registered nurse with a rich and diverse range of academic, clinical, management and research expertise in India and the UK for over 30 years.

Leah's teaching and research include award winning dementia education initiatives and complexities of care for older people with dementia, frailty, and sensory impairments.

Prof Frank Gunn-Moore

Frank is Head of the School of Biology at University of St Andrews.

He combines all three science disciplines in leading a research group that has made major discoveries in understanding the early stages of Alzheimer's disease, pioneering new models and identifying potential therapeutic targets.

Dr Louise Ritchie

Louise is a Reader in Dementia Research in the Alzheimer Scotland Centre for Policy and Practice at the University of the West of Scotland.

She is a psychologist with a focus on applied psychological research that aims to improve the lives of people living with dementia, their families and people who care for them.

Dr Mario Parra Rodriguez

Mario graduated as a Medical Doctor in 1993 and as a Clinical Neurophysiologist in 1997. He worked at the Cuban Neuroscience Centre and at different University Hospitals in Cuba and in Colombia.

Mario was as an Assistant Professor in Psychology at Heriot-Watt University, Edinburgh from 2015 until 2018. He is currently a Senior Lecturer in Psychology at the University of Strathclyde, Glasgow.

Dr Sophie Bradley

Sophie is a Director in Translational Biology (Neuroscience) at Sosei Heptares, an international biopharmaceutical company focussed on the development of G protein-coupled receptor (GPCR) targeted therapeutics and an Honorary Senior Research Fellow at the University of Glasgow.

Dr Tom Russ

Tom trained in medicine and psychiatry in Edinburgh, the Highlands, and London and completed a PhD in dementia epidemiology at the University of Edinburgh.

He is a consultant psychiatrist in NHS Lothian, Network Champion of the NRS Neuroprogressive and Dementia Network, and Director of the Alzheimer Scotland Dementia Research Centre at the University of Edinburgh.

Nancy Brown

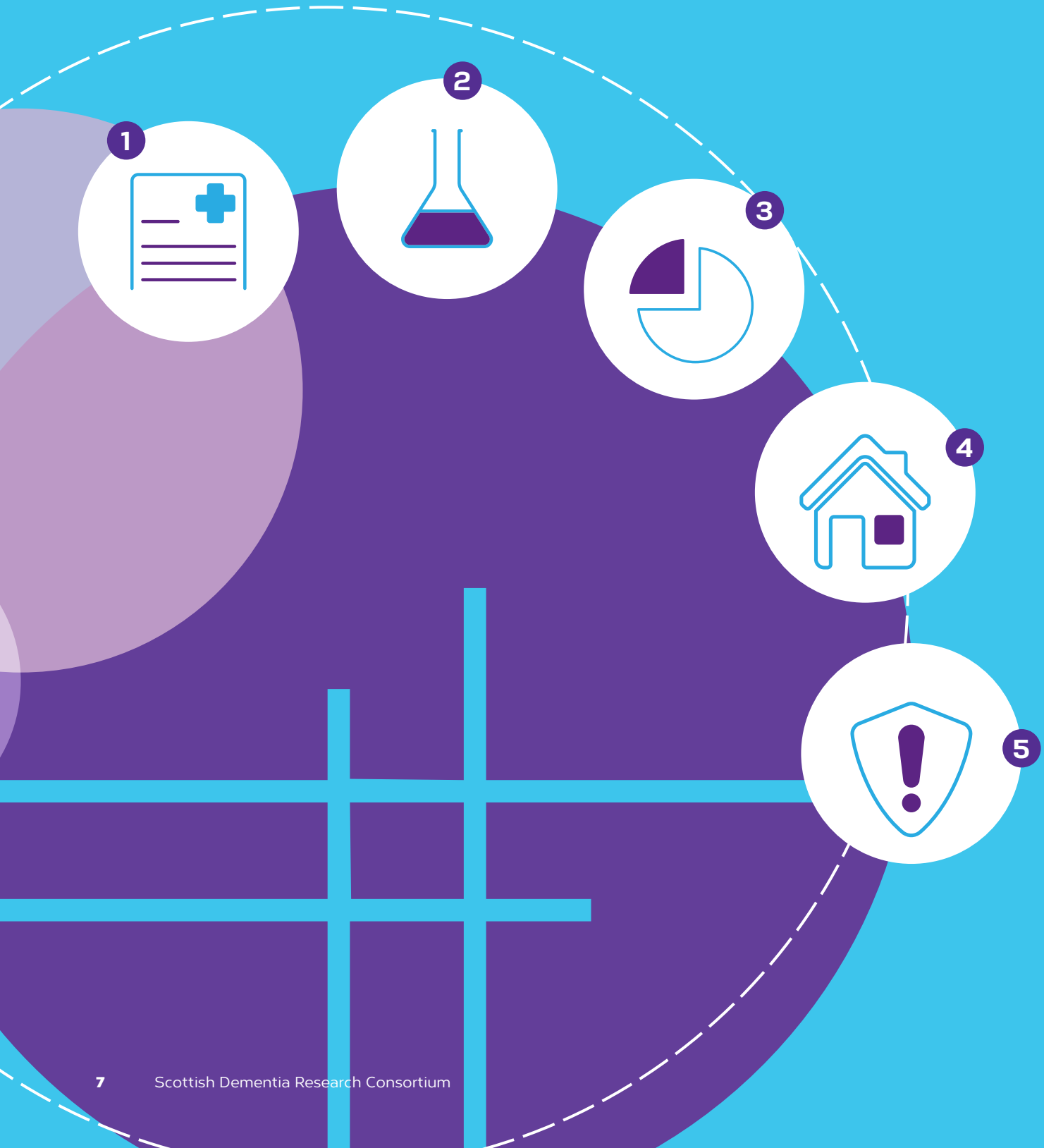
Nancy is a PhD candidate in dementia care at the University of Edinburgh. She has 18+ years' experience as a group supervisor in a memory day centre. Her research interests lie in the importance of community support for memory day centres and moving its built environment to an online platform developing meaningful activities among immigrant populations living with advanced dementia.

Dr Stina Saunders

Stina is a Research Scientist at Linus Health, a US-based company focused on improving brain health through the early detection and monitoring of neurodegenerative disorders.

Stina also holds a Postdoctoral Research Fellow position at the University of Edinburgh. Stina's educational background is in Clinical Brain Sciences (PhD) and Clinical Psychology (MSc and MSc by Research) and Psychology (BSc).

SDRC dementia research themes



What we know, where we are now and future ambitions within each of the key areas of dementia and brain health research.

1. Diagnosis
2. Fundamental Science
3. Informatics & Technologies
4. Living with dementia
5. Prevention

1

Diagnosis

Theme leads
Dr Terry Quinn
Dr Jennifer Macfarlane

The diagnosis theme is focused on the evaluation of new tests and improving the use of established tests. Research in this area investigates how to diagnose dementia or other cognitive syndromes earlier, more accurately or with less burden.

Timely and robust diagnosis is a fundamental part of dementia management. Within the diagnosis remit is everything from technical development of new brain scan protocols through to studies of how to share a potential dementia diagnosis with a person and their family.

If diagnosis is done well, it can help with how the condition is managed and what treatments may be available.

Diagnostic tests are important at all stages of the dementia journey, from biomarkers and neuroimaging which may look for the earliest signs of brain health problems, through to assessments that help us treat and monitor those people living with advanced dementia.

The diagnosis theme often feels like it sits at the intersection of many of the other SDRC themes. For example, development of new technologies for diagnosis and use of big data to improve diagnostics both align with the 'Technology' theme. Recent papers by SDRC members looking at disclosure of the dementia diagnosis fit well with the 'Living with Dementia' theme, while work on fluid biomarkers is informed by 'Fundamental Science'. Diagnosis and the monitoring of treatments frequently rely on imaging 'Technology' as well as the application of 'Informatics'. The synergy between themes is reflected in the convergence of interests and mutual support between SINAPSE, SULSA (Scottish imaging and life sciences pooling groups) and SDRC.

Developments within theme

2022 was a busy time for cognitive diagnosis research in Scotland, with new projects, new technologies and new teams being developed.

There isn't space to describe all the important work happening in the diagnostics field, so we offer some examples to give a flavour of the variety of activity in the last year.

Research from Scotland has established the association between sub-concussive head impacts (in this case heading in football) and future cognitive problems. New projects using MRI and EEG will now help explore the underlying mechanisms of these changes.

In SDRC our interest goes beyond dementia and we are interested in other cognitive syndromes and neurodegenerative disorders. For example, the innovative work looking at mobile EEG to assess mobility problems in people with Parkinson's disease; or the suite of projects from Neuroimaging Sciences at Edinburgh Imaging looking at markers of cerebral small vessel disease. The team are working with collaborators from Toronto and Utrecht to assess 30 neuroimaging databases, including several Scottish studies.

Optum UK have recently filed a patent for an image ranking tool designed to support (NOT replace) radiologists. This technology has several potential applications, but they focus on the first clinical validation in brain MRI from patients with cognitive decline and dementia working in partnership with a team from Edinburgh University and Hardian Health.

SDRC activity within theme in 2022

SDRC members were involved in many aspects of the forthcoming Scottish Intercollegiate Guideline Network (SIGN) Guideline on Dementia. The content of the Guideline was shaped by researchers, clinical staff, third sector representatives and people living with dementia. The importance of diagnosis in dementia is evidenced by the number of recommendations made that are pertinent to diagnosis. These include sections on neuroimaging and CSF biomarkers, cognitive screening tests, remote assessment and best practice in making and sharing a diagnosis of dementia.

In SDRC we monitor publications from our members, and it has been encouraging to see the number of high profile papers published by Scottish teams that are relevant to diagnosis. The range of titles speaks to the variety of diagnostic research happening in Scotland from assessment of the proteome through to using patterns of speech as an early marker of dementia.

A special mention must go to the researchers who presented their work at previous SDRC conferences and have gone on to achieve publications in peer reviewed journals. Hopefully the conference experience and questions from delegates helped improve your papers.

2

Fundamental Science

Theme leads

Prof Frank Gunn-Moore
Dr Sophie Bradley

Fundamental Science is the area of research that is the foundation for the development of diagnosis and treatments for dementia. It is normally a lab-based science which improves our understanding of how the brain works and identifies what changes in the brain before and during dementia. The unravelling of these fundamental processes are imperative so that we can uncover potential drug targets which may prevent, delay or reduce the symptoms of dementia.

At present, work within the Fundamental Science has led to new and world leading facilities that aim to translate this knowledge into potential new therapies. Fundamental sciences in dementia research can also draw on the expertise of all Life Science researchers in Scotland, also the wealth and strength in depth of other disciplines including chemistry, physics, and mathematics.

Developments within theme

At the end of last year, there was dramatic news about a new modifying drug for the treatment of Alzheimer's disease, Lacanemab. This was a major turning point, as the "amyloid hypothesis" which was originally proposed by Sir John Hardy and debated in the community for ~40 years, appears to have been correct. Going forward, larger trials, more analysis and more experiments will be needed to develop this further. While this drug is not yet approved for use in Scotland, it is very hopeful that even more effective treatments will emerge soon.

From Tara Spires-Jones's group (University of Edinburgh) came a publication that is an example of the world-leading nature of human cohorts in Scotland. By examining brain samples from participants in both the Lothian Birth Cohort and the Alzheimer Scotland Dementia Research Centre, it was tested what brain changes predict resilience to cognitive decline and dementia during ageing. They showed that synaptic resilience is a very important component. This project was funded by a pharmaceutical collaboration:
https://doi.org/10.1002/alz.12894.

From the same group came also from another collaboration with industry, it was tested another potential therapeutic pathway in a mouse model of Alzheimer's-like pathology which found beneficial effects on synapses.
https://doi.org/10.1177/23982128221086464

Collaboration is the bedrock of modern science and the researchers within the SDRC Fundamental Science theme epitomise this approach. As ever there were excellent examples of researchers from across Scotland coming together. One such project started off as a conversation in a bar, and resulted in a major news story involving researchers based in the Modern Institute and Glasgow, Edinburgh and St Andrews Universities. Specifically, in last year's Annual Report, we noted the rise of papers focusing on non-human species showing signs of Alzheimer's disease. This has continued throughout 2022, with three different species of cetaceans now added to the list. **(https://onlinelibrary.wiley.com/doi/10.1111/ejn.15900).**

In addition, Chris Henstridge (Dundee) led on an interesting collaborative study between Dundee and Edinburgh showing changes in synapses in people with the C9ORF72 mutation which can cause ALS or frontotemporal dementia.
https://doi.org/10.1186/s40478-022-01455-z

SDRC activity within theme in 2022

In the last year, there were many examples of colleagues working together to organise meetings, workshops and conferences. They were also involved in international events such as the Carswell Group (University of Strathclyde) in the 30th International Symposium on Cerebral Blood Flow, Metabolism and Function 2022 - with the associated outreach activities being the winner of the Incredible Impact/ Best Cities award.

In May 2022, the SDRC, SULSA, Brain Health Scotland and Alzheimer Scotland hosted world leaders in Life Sciences at a summit at the University of St Andrews. This new initiative was a two-day event, led by our SDRC Executive Committee Member Frank Gunn-Moore and former Chair Craig Ritchie. The aim was to bring together leading brain health and dementia researchers from across the globe with representatives of the pharmaceutical industry and other organisations, to form a partnership that could see Scotland leading the world in finding a cure for neurodegenerative diseases including Alzheimer's including building collaborative research partnerships and supporting optimal clinical trial delivery as well as clinical practice.

In February 2023, the Glasgow Life Sciences Symposium focused on early career researchers from undergraduates to new lecturers and brought together the linked areas of cardiac and dementia research.

As well as the publications listed elsewhere, there were also great examples of publications in Fundamental Science. These range from new potential treatments that have come from work done by Jenni Harvey (Dundee) to work from St Andrews on a system normally associated with weight gain issues.
https://onlinelibrary.wiley.com/doi/10.1111/jnc.15733.

The Carswell Group also published a paper summarising attempts towards clinical translation of 'second-generation' regenerative stroke therapies **(10.1016/j.tibtech.2021.10.009)**

3

Informatics & Technologies

Theme lead
Dr Mario Parra Rodriguez

The Informatics and Technology theme is wide-ranging and also supports the work of the other SDRC themes.

The Informatics aspect covers research which uses data that already exists to identify ways to improve the experience of dementia. This includes health data but can also include any other data, e.g social media

The Technology part of the theme involves developing technologies to support those living with or at risk of developing dementia. This includes harnessing the innovation and expertise that exists in many diverse disciplines to improve many aspects of the dementia journey: from improving brain health, diagnosis or supporting the day-to-day lives of people living with dementia and their loved ones.

Developments within theme

The SDRC and Digital Health & Care Innovation Centre (DHI) have entered a strategic alliance which enables new national and international collaborations. The synergies with DHI are creating new opportunities to bring relevant stakeholders together to explore national strengths to deliver technologies that can meet the expectations set by the government. This collaboration has led to international discussions involving representatives from Norway who were interested in learning about the Scottish Brain Health and Dementia Research Strategy and our use of technology to support people living with dementia. A further meeting with a delegation from Denmark will be held in April 2023. These emerging relationships show the reputation Scotland has globally for innovation to support people living with dementia and those who care for them.

The synergies between the SDRC and the DHI are also creating opportunities to launch new funding schemes. In collaboration with Data Challenge and the DHI we recently launched a new initiative (Brain Health and Data Challenge **(https://www.dhi-scotland.com/news/bhtdc_expression_of_interest/)** which attracted applications for industry and academic partners.

SDRC activity within theme in 2022

Work for the Informatics & Technology theme throughout 2022 has focused on activity which align with Alzheimer Scotland's Technology Charter. This themes commitments include: working in partnership with people living with dementia and those who care for them to develop technologies that promote brain health, restores cognitive and functional abilities, and assist those who cannot longer live independently. **(https://www.alzscot.org/sites/default/files/images/0002/0289/Technology_Charter_for_People_with_Dementia_in_Scotland.pdf)**

It is with these aims in mind that we have established a Special Interest Group (SIG) on Technologies for Brain Health and Dementia Prevention. Find out more about the Special Interest Group on page 35.

There are examples of research happening in Scotland which have attracted significant funding. One such examples if the project AMPER. AMPER is a one-million pound EPSRC funded project that brings together expertise on computer from the National Robotarium at Heriot-Watt University (Dr Dr. Mei Yii Lim and Prof Ruth Aylett) and on Cognitive Neuroscience of Ageing and Dementia from the University Strathclyde (Dr Mario A Parra). AMPER, which stands for 'Agent-based Memory Prosthesis to Encourage Reminiscing' will deliver new technologies that will assist people with dementia to access memories from their past and in so doing strengthen their self-esteem and feelings of belonging **https://www.strath.ac.uk/whystrathclyde/news/ 2022storytellingaitoimprovewellbeingofpeoplewithdementia/.** The project involves key stakeholders such as the NHS Scotland Neuroprogressive and Dementia Network's Partners in Research Initiative, the Informatics and Technology theme of the SDRC, the charity Sporting Memories, which delivers reminiscence therapy to people with dementia through video footage in day care centre settings, the Centre for Dementia Prevention, and the Latin American Network for Dementia Research.

As part of the theme another project worth highlighting which is carried out by colleagues from University of Glasgow (Patrizia Di Campli San Vito) is RadioMe: Adaptive Radio to Assist People with Mild Dementia in Their Own Home. The RadioMe system aims to help people with mild dementia in early stages living in their own home: wearable sensors will detect agitation and will trigger a change in music on the live radio stream, playing calming music to alleviate the stress. In addition, the system will also be able to embed reminders from a calendar in the live radio stream. The RadioMe collaboration between the University of Glasgow, the University of Plymouth and the Anglia Ruskin University in Cambridge brings together specialists in dementia research, music therapy, musical computation and human computer interaction.

4

Living with dementia

Theme leads

Professor Debbie Tolson
Dr Tom Russ, Dr Louise Ritchie
Dr Leah Macaden, Nancy Brown

Research within the Living with Dementia theme generates new knowledge about life with dementia. It includes research leading to innovations that address everyday challenges, enhances dementia care, improves services and understanding that propels dementia education excellence and informs policy.

The scope of Living with Dementia research extends from diagnosis across all stages of the illness experience. It seeks to understand the experiences, knowledge and skill needs of people who are diagnosed, their family and friends and the practitioners and volunteers who support them both informally and formally. Importantly, our research embraces a diversity of perspectives, living circumstances and care situations.

Accordingly, it is important that we understand the diversity of experiences associated with dementia so we can support, care with and enable all people affected by dementia to live the best life possible. A key imperative is for our research to be helpful through its application within policy, practice and dementia education. The applied research undertaken by SDRC members associated with this theme, has the potential for immediate impact and influence.

Developments within theme

There is much happening across the Living with Dementia thematic area in Scotland. Pivotal to research achievements and the future of dementia research in Scotland is collaboration, research involvement and creative research disseminations that make our science both meaningful and accessible.

Research centres and institutions have their own priorities and signature research. This has been reflected in the breadth of research topics evident within the 62 research publications authored by SDRC members which were published in 2022. These research outputs give insight into the scale of the Scottish dementia research landscape and ecosystem associated with this theme. The SDRC community adds value through its collaborative and nurturing ethos, with a focus on supporting early career researchers. A core undertaking of the Living with Dementia co-ordinating group is to support people living with dementia and family carers with research involvement. This embodies the inclusive principles set out in Scotland's Brain Health and Dementia Research Strategy. Research with people with lived and living experience of dementia is one of our SDRC priorities.

Accordingly, we work closely with the Scottish Dementia Working Group (SDWG) and National Dementia Carer Action Network (NDCAN) research groups to ensure we understand their research interests and priorities. During Dementia Awareness Week 2023, Professor Debbie Tolson and Dr Louise Ritchie will be exploring with SDWG their forward collaborative research agenda and what SDRC can bring to their table. This builds on previous work undertaken with NDCAN who identified advanced dementia and keeping a relative with advanced dementia safe as a family carer research priority. NDCAN member Elaine Deehan, along with academics Drs Anna Jack-Waugh, Nick Jenkins and Suzanne Heron, secured a University of the

West of Scotland Studentship to progress research reflecting the NDCAN family carer's research priority. Congratulations to Margaret Kyeremeh who secured this competitive doctoral studentship to study the experience of managing risk from the perspective of family carers of people living with advanced dementia.

Co-production research with people living with dementia and family carers as equal partners in the research process has been developing throughout the theme. Dr Tom Russ and team at the University of Edinburgh have recently completed a co-produced project called "Sharing the Diagnosis of Dementia in the Post-Covid Clinic: Patient and Practitioner Perspectives" project where they spoke with people who were given a diagnosis of dementia by phone/videocall during the lockdowns and professionals who had to practice in this way. A scientific article is forthcoming, but two animated films (voiced by a member of their lived experience group) are available summarising the findings, one for the general public and one for professionals as well as a podcast series outlining the process of the research and its broader context. They are all available through the project's website at **https://www.alzscotdrc.ed.ac.uk/dementia-diagnosis-post-covid**

In another co-produced project, Drs Louise Ritchie, Laura Lebec and team at the University of the West of Scotland are co-producing an intervention using career guidance approaches to support people who are diagnosed with dementia at working age.

At the University of Stirling, Dr Paula Jacobs and team have been funded by Dunhill Medical Trust to explore the experiences of couples with a learning disability when one partner has dementia. The idea for this study came from a married man with a learning disability who has dementia and shared his concern about how the diagnosis may impact on his relationship. The project team were finalists in the Diversity through Education category in the Herald & Gen Analytics Diversity Awards and were highly commended in the University of Stirling Research Culture Awards.

Thanks to RS MacDonald Charitable Trust funding, the University of the West of Scotland has a dedicated institutional Seedcorn Fund. The first round of funding is supporting four Principal Investigators, new to dementia research to undertake preliminary studies focussed on Living the Best Life Possible with dementia. These new projects are being led by sports scientists, mental health nurses and adult nurses and teams who have joined us as new members of the SDRC community. They are investigating issues around physical health, rural care, young onset dementia care and dementia-friendly walking football.

Another new preliminary study that got underway in 2022 is being undertaken as a form of co-operative research. By this we mean research that is supported by contributions in kind rather than through direct funding. This study has been planned by an inclusive SDWG-NDCAN-SDRC research team and is supported by Alzheimer Scotland, UWS and UoE. The idea behind the research is to learn from the things that helped people with dementia and their families during pandemic lockdown. A scientific research proposal was collaboratively prepared following introductory research method workshops. Subsequently the research team modified the Nominal Group Technique to make it accessible for people with dementia. Trained facilitators with lived experience supported by academics and doctoral students will undertake a series of NGT interviews. Findings will be shared towards the end of 2023 and will feature in next year's SDRC report.

At any stage in a researcher's career it is an accolade to have research innovation and leadership recognised. In 2022 Dr Leah Macaden was honoured to receive a Fellowship of the American Academy of Nursing for Dementia Workforce Development and related studies. Leah's recent research also embraced co-creation, which underpinned the development of the care home educational innovation evaluated in a project funded by The Churchill Fellowship's COVID -19 Action Fund.

5

Prevention

Theme lead
Dr Stina Saunders

Prevention is a significant area of research world-wide and in Scotland. It explores how we can prevent dementia or delay its symptoms.

This includes research into internal and external factors which affect brain health. If we can do this effectively decades before the symptoms develop, then we can prevent the disease progressing to dementia.

This work includes the undertaking and coordination of cohort studies (a group of people studied over time) where we can learn about disease progression and how this is related to factors like lifestyle, medical co-morbidities, and genetics.

Developments within theme

It has been a great year in the prevention theme of SDRC with lots of on-going projects and set-up of new initiatives bringing attention to the possibility and aspiration of preventing dementia. Here are some of the highlights of this year's activities.

Over the past year the **PREVENT dementia programme** (Principal Investigator Prof Craig Ritchie) led by the University of Edinburgh has been completing follow-up assessments with participants whilst also recruiting new participants who are ex-professional rugby and football players. To date 48 rugby players and 25 footballers have been recruited, and the recruitment of rugby players will be complete by June 2023 when the data will be prepared for analysis. The PREVENT dementia programme has also had a number of publications released this year on the baseline dataset of the longitudinal study, a full list of PREVENT publications can be found on the PREVENT website: **https://preventdementia.co.uk/publications/**

Furthermore, over the past year, Early Career Researchers from the PREVENT dementia programme and the Global Brain Health Institute established the **Next Generation (NextGen) study,** focusing on brain health in young adulthood (18-39 years). The group of researchers recognised that young adults are neglected in brain health research despite exposure to many lifestyle-related risk factors beginning during this stage of life. By bridging evidence gaps in young adults, we hope to characterise patterns of risk exposure across the life course, and ultimately, identify critical windows for intervention. Ongoing research includes focus groups to explore young peoples' awareness, understanding and attitudes towards brain health. Findings will inform an international survey targeting young adults, which will be launched in 2023. Associated paper at BMJ: **https://www.bmj.com/content/378/bmj.o2311**

Additionally, a sister project to the PREVENT study was launched. **The Ghana PREVENT Study** seeks to develop a cohort of people to facilitate the study of risk factors of dementia in the Ghanaian population. The study is modelled around the PREVENT programme with the following objectives:

1. Build a database of deep digital phenotype of a representative sample of middle-aged individuals across Ghana.
2. Carry out baseline comparative analysis between the Ghana PREVENT and the UK PREVENT Programme cohorts to document the differences between developed and developing countries as represented by the two cohorts.
3. Develop early detection and risk prediction models using Artificial Intelligence approaches.
4. Contribute to global cohorts to explore differences and generate evidence to support policy formulation locally.

The past year has focused on development of partnerships with local academics and practitioners to co-design and implement the study. A full protocol has now been developed and ready for ethics approval. Data collection is anticipated to begin 1st May 2023. The project will be funded by the Davos Alzheimer's Collaborative and is led by Principal Investigator Dr Sammy Danso.

Finally, **Brain Health Scotland launched the My Amazing Brain** school programme which is aimed for 8-12 year-olds (P5-P7) and designed to help children explore all about how to keep their brain healthy. The programme includes animations, activities and worksheets to fit in with any schedule in a lesson plan. The lessons are research based and informed by the Curriculum of Excellence as well as being fun, engaging and accessible. They are available in English and Gaelic and can be used in a school setting or outside the classroom e.g. Brownies, Scouts or football camps.

Brain Health Scotland is delighted that around 200 schools and nearly 10,000 children have used the My Amazing Brain free resources. The goal is to inspire and empower young people to learn about the things they can do to keep their brains healthy so they can set up good habits early in life. You're never too young to look after your brain, your brain is amazing, let's keep it that way!

Mapping Scotland's key contribution to global dementia and brain health research

This section of the report outlines the results of our extensive mapping of the Scottish dementia research landscape. This is the fifth time we have undertaken this exercise. We have included information on grant awards, publications to scientific journals from all disciplines in dementia and brain health research throughout 2022. Also included are details on the Scottish-based researchers who have contributed to this activity and their international collaborators.

The statistics only show part of the story. Read other sections of the report for context and find out more about the quality of research that has taken place across Scotland, and learn about the researchers who are doing the work.

Funding levels and sources

Number of awards: 54

Total amount of funding: £14.5 million

Figure 1: Grant award by theme in 2022

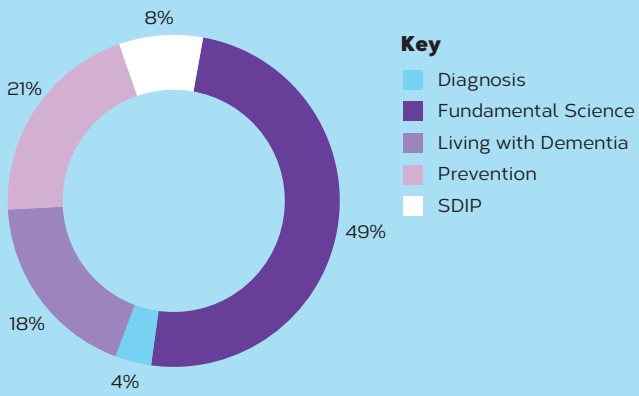


Figure 2: Grant award by year

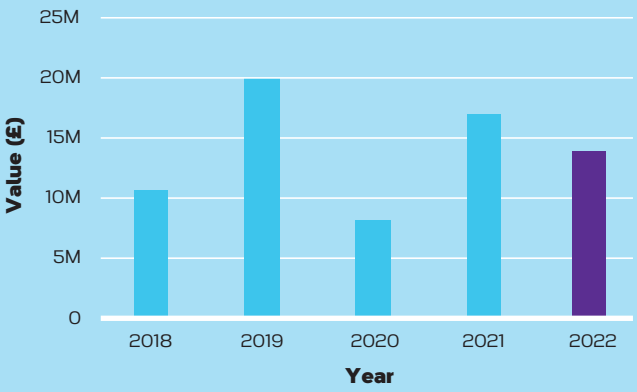


Figure 3: Grant income by year by theme

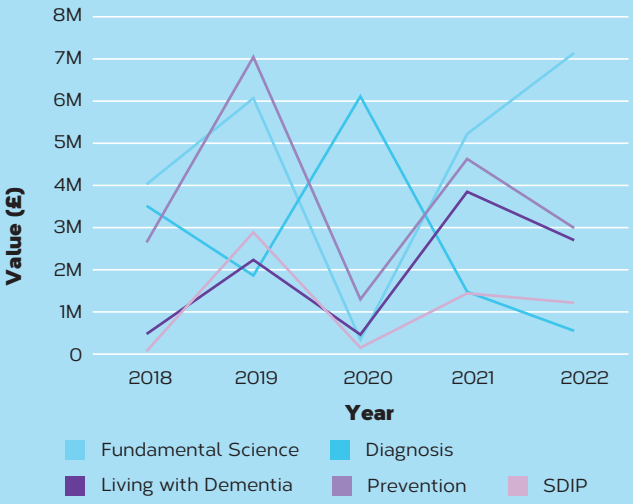


Figure 4: Funding source by location in 2022

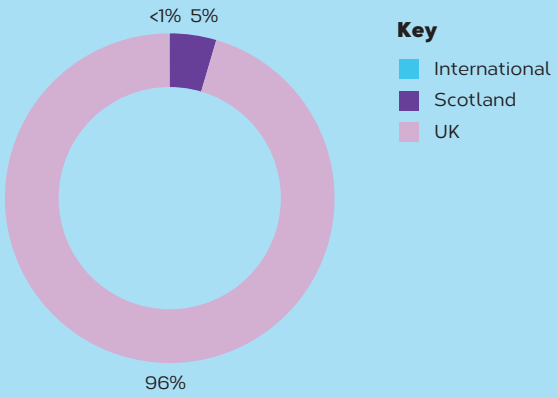


Figure 5: Funding source location by year

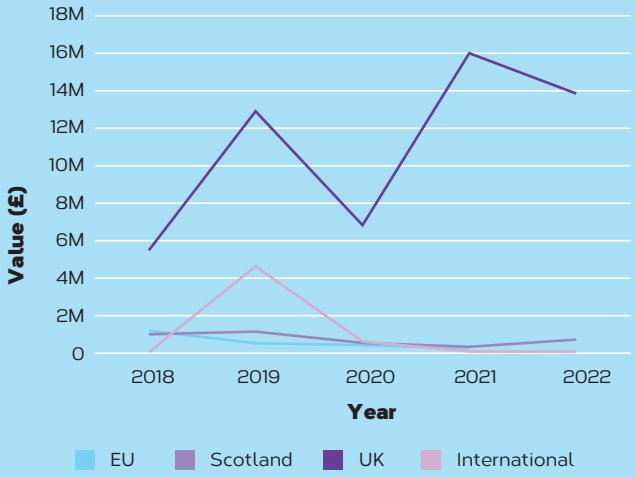


Figure 6: Funding source by type of organisation in 2022

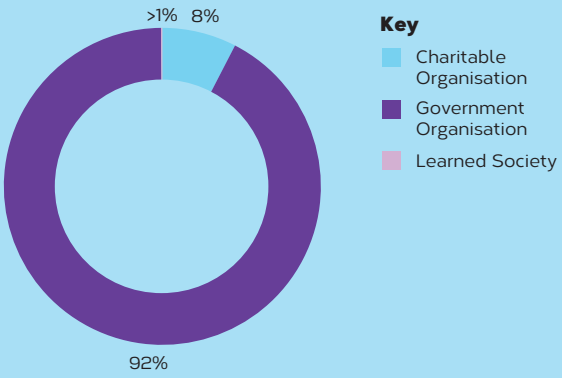
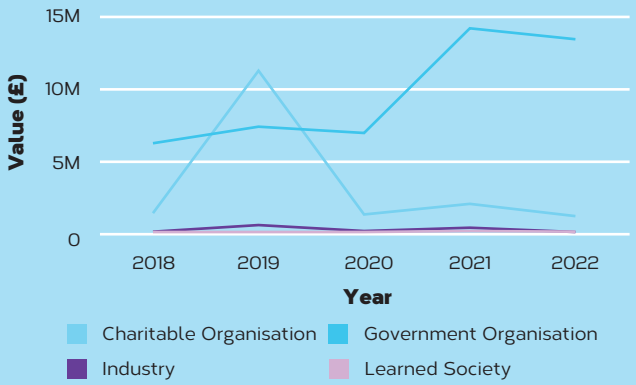


Figure 7: Funding source by organisation by year



Figures 4-7 provide more information on the source of funding into dementia research in Scotland. The location of awarding bodies are shown in Figures 4 & 5 where it is clear the majority of investment comes from institutions in the UK that are not specifically Scotland. Figures 6 & 7 show that as with previous years, the majority of funding comes from Governmental organisations, for example, the Medical Research Council and the Economic and Social Research Council. We are aware there may be a gap in our recording of the amount of investment from industry given their funding arrangements are often not reported in the same way as charity or government funding.

Published Papers

Total number of papers in journals in 2022: 309

We are seeing an increase in the number of papers being published, compared to the previous year. The figure is still significantly less than 2020. However it is important to bear in mind the context of COVID-19 and the fact that a larger number of papers were published due to fewer grants being awarded.

Figure 8: Publications by theme in 2022

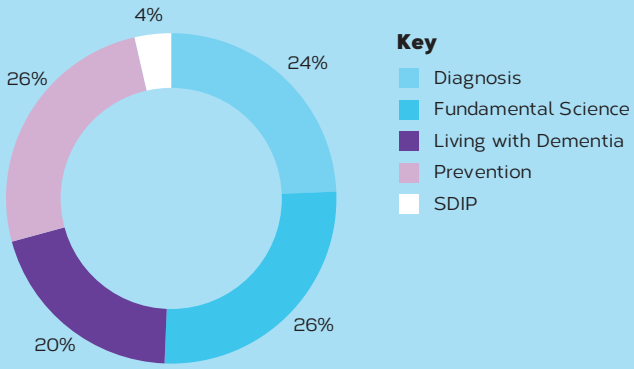
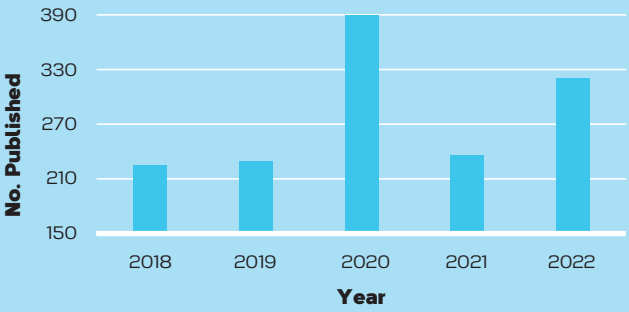


Figure 9: Publications by year



Who is doing research?

This section will look at who contributes to this research, both in Scotland and internationally.

Researchers in Scotland

For the 2022 mapping of Scottish dementia and brain health research, we have looked at who (based in Scotland) has contributed to a paper published in an academic journal or was part of a team awarded a grant.

Number of Scottish contributions in 2022: 1224

Number of Scottish researchers active in 2022: 730

International Collaborations

We have also investigated the collaborations between Scottish-based researchers and international collaborations.

Number of international collaborators: 2208

Number of collaborations: 2316

Number of countries: 49

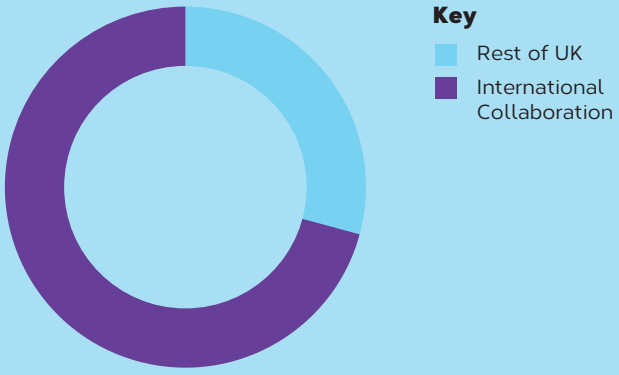
There was a great amount of diversity in international collaboration. The table below shows to top 20 countries that Scottish-based researchers have collaborated with in 2022.

The graph below collaboration between those within the UK and with those in countries outside of the UK. This is evidence that geography does not need to be a barrier to working together with those with similar research interests and cross-institutional collaboration does not need to be confined to the country you are in.

Figure 10: Top 20 Country Collaborations

England	587	Belgium	50
USA	306	China	49
Germany	217	Ireland	46
Netherlands	141	Brazil	36
Australia	110	Wales	31
Canada	99	Sweden	28
France	70	Switzerland	24
Spain	56	Norway	17
Italy	52	Malaysia	17
Chile	51	Argentina	17

Figure 11: Collaboration in 2022



Confident Conversations

Confident Conversations is a collaboration between the Neuroprogressive and Dementia Network (NDN) and Alzheimer Scotland. It is a forward-thinking initiative to assist in enabling everyone with dementia to be offered the opportunity to participate in research.

The aim of Confident Conversations is to empower Alzheimer Scotland staff, as professionals with an established relationship with the person living with a dementia diagnosis and their family, to have conversations about research participation.

It also assists in developing closer links with the local NDN team meaning that there is research expertise available and someone to contact locally about research.

The expected outcome will be a higher number of people participating in dementia research because of these conversations. This will help to meet the goals of increasing prevention, improving care and ultimately finding a cure.

From the 2022/2023 financial year, the Confident Conversations programme has:

- developed a workbook for all key Alzheimer Scotland staff to access
- developed and delivered pilot training to two sites, which enable NDN staff to refine the content and delivery of the programme
- delivered a further 6 sessions and planned to deliver 4 more.

Feedback on the sessions so far have been largely positive. All respondents indicated that the training had introduced new ideas about how to have confident conversations about dementia research, with almost two thirds stating they felt more confident in general around research.

The NDN are also gathering information about how staff who have been involved in the training are able to use their new knowledge to have conversations about research with the people they support. While many Alzheimer Scotland staff have disseminated a lot of research recruitment materials, it will take a number of months to be able to assess the increase in referrals to research initiatives.

The feedback received will shape delivery of future sessions and has been used to create new materials to support staff learning. This has included the Confident Conversations toolkit postcard that the staff can use when thinking about research and talking to their contacts. It has been well received amongst Alzheimer Scotland staff.

It has been suggested that this training is widened to a larger population in health and social care and one group of attendees wants this to be delivered to NDCAN and the SDWG. More training will be delivered to remoter parts of Scotland.

Early Career Researchers Spotlight

The Scottish dementia and brain health dementia and brain health early career researcher community is both exciting and diverse. There is a wealth of innovative research taking place across Scotland in all disciplines. Below are just a few examples of the work of early career researchers.

Lisa Davison

I am a Quantitative Research Fellow at the University of Stirling, with an MSc and PhD in Gerontology from the University of Southampton.

I currently work on two research projects. First, the Designing Homes for Healthy Cognitive Ageing (DesHCA) project which examines how housing design can support older people, including those living with cognitive change, to live well at home for longer. Secondly, the Intersectional Stigma of Place-Based Ageing (ISPA) project which explores how stigma attached to where people live intersects with experiences of disability and ageing.

I am also on the committee for the British Society of Gerontology (BSG) Emerging Researchers in Ageing (ERA) special interest group, whereby we provide opportunities for networking and professional development, and organise informal "Gerontology & Tonic" sessions on a range of topics for "accidental gerontologists". Our mentoring scheme also matches up early career researchers with mentors based on shared research interests and support needs.

My current aims for my research career are to develop my network and learn new quantitative methods, while publishing from my PhD research and from the projects on which I work. In the future I hope to remain in ageing research, whether in academia, government, or third sector organisations.

Mohamed Elsharkasi

I am an associate lecturer in neuroscience at the School of Psychology and Neuroscience at the University of St Andrews, I am also at the writing up stage of my PhD in Biomedical Science at Glasgow Caledonian University. My PhD project investigates the use of Nrf2 protein activators for neuroprotection in Alzheimer's disease. Before pursuing my career in academia, I obtained a pharmacy degree from Misurata University in Libya and worked as a pharmacist for a few years. Then decided to continue my education where I obtained an MSc in Pharmacology from Glasgow Caledonian University and graduated with distinction in 2018.

My research interests focus on neurodegenerative disorders, particularly Alzheimer's disease, with the aim of advancing our understanding of the underlying mechanisms involved in these conditions and developing innovative therapeutic strategies for their treatment. Currently, I am conducting a systematic review and meta-analysis titled "Association of Nrf2 target genes with cognitive decline in mouse models of amyloid toxicity: Systematic review & meta-analyses" to identify therapeutic targets for developing drugs that can slow the progression of neurodegenerative diseases and improve cognitive function with minimal adverse effects. In the future, I aspire to establish my own research group and continue to teach in academia.

Danni Gadd

I am in the final year of my PhD on the Welcome Trust Translational Neuroscience programme at the University of Edinburgh.

My PhD focuses on finding blood-based markers that can help to stratify risk of dementia and diseases that associate with dementia onset. We look for markers up to 16 years prior to diagnosis, as we want to be able to identify individuals that will benefit from preventative interventions. By uncovering these markers and looking at how genetic and environmental factors can influence them, we have also identified potential pathways that may underlie brain ageing and dementia risk.

I work with large cohort studies such as Generation Scotland, which has information from over 20,000 volunteers. If you are living in Scotland and would like to contribute data that will be used in research, take a look at their website for more information on how to join.

After my PhD, I hope to gain experience working between both academia and industry. I hope to secure funding to continue to work on our understanding of brain health and disease.

Natalie Jenkins

I am a second year PhD student in Psychology & Neuroscience at the University of Glasgow. Prior to this I obtained a BSc in Neuroscience and an MEd in Psychology. After completing my master's degree, I began working in clinical research joining Edinburgh Dementia Prevention where I developed an interest in brain health and modifiable risk factors, with a particular emphasis on traumatic brain injuries.

The focus of my PhD is to examine long-term brain health outcomes following domestic abuse related head injury. When I began to look at the literature, I was shocked to find very little research. This is surprising given the vast research and media coverage linking contact sports head injuries to neurodegenerative disease. In fact, it is estimated that there are more women living with domestic abuse related head injuries than individuals with contact sports and military brain injuries combined. Through my research I am hoping to highlight an important and understudied population in dementia research.

Meghan Minnis & Rachael Gartly

We are Medical Students from University of Glasgow who have taken a year out of the undergraduate program to pursue intercalated research projects with the aim of achieving a BSc. We work with Terry Quinn and his team on projects with a clinical focus.

When we first selected projects, we weren't thinking about dementia. However, the broader concept of brain health covers many of the research topics that we were keen to explore, such as cognitive assessment in stroke and activities of daily living in older adults. We enjoy working on these projects and hope to continue doing neuroscience research. Dementia and brain health is an exciting area to be working and we would recommend to anyone. It has also given us lots of opportunities, for example using the Join Dementia Research resource for recruitment and presenting at the SDRC Conference 2023. We are now both advocates for dementia research, and the SDRC, and encourage other medical students to join.

Holly Spence

I recently submitted my PhD thesis investigating links between brain iron and age-related cognitive decline at the University of Aberdeen. Previously, I completed an Msci in Biomedicine at Lancaster University where I cemented my keen interest in neuroscience research.

During my PhD, I compared brain MRI scan and cognitive task score data from the Aberdeen children of the 1950s birth cohort and their first-generation relatives to better characterise relationships between brain iron and cognition in a cognitively healthy population. Additionally, I explored correlations between brain iron and blood markers for systemic iron and inflammatory status to elucidate potential mechanisms behind brain iron increases.

I have recently joined the Gregory lab at the University of Aberdeen as a post-doctoral research fellow investigating ALS/MND pathologies and am excited to continue my research into neurodegenerative mechanisms, applying the skills gained during my PhD and learning new research techniques.

Donncha Mullin

I am a Psychiatrist and Physiotherapist in my third year of a PhD Clinical Fellowship at the University of Edinburgh. I am investigating the role that having both slow walking speed and self-reported memory problems combined plays in predicting dementia later in life (a syndrome called Motoric Cognitive Risk [MCR]). Having MCR earlier in life triples the risk of developing dementia 5 – 10 years later. I published these findings in Alzheimer's & Dementia early in 2022. I then explored, for the first time, how common MCR is in Scottish people. Using the Lothian Birth Cohort 1936, I found that approximately 5% of 76-year-olds have MCR. Next, I studied what modifiable risk factors make MCR more likely, as by addressing these, we may potentially reduce the risk of going on to develop dementia. I found that a lower socioeconomic status increases the risk of having MCR. I published these findings in the International Journal of Geriatric Psychiatry in August 2022. During 2022, I have been awarded the Royal College of Psychiatrists in Scotland Researcher of the Year Award, the European Federation of Psychiatric Trainees Researcher of the Year Award, and the Gerontological Society of America Best Trainee Poster Award.

Martin Taylor-Rowan

I'm a post-doc researcher based at the University of Glasgow. I have a background in Neuropsychology and completed my PhD at the University of Glasgow in 2019. My research focuses on identifying effective ways of diagnosing dementia as well as establishing potentially changeable risk factors for dementia that could be targeted with interventions designed to prevent or delay dementia from developing.

I predominantly work in stroke populations and have a particular interest in the links between frailty and dementia. We recently completed an interesting project, funded by the Scottish Dementia Research Consortium, exploring the relationship between frailty, brain frailty and long-term cognitive impairment after stroke. I hope to expand further on this work, looking into the mechanisms behind frailty's apparent relationship with dementia, potentially as part of a research fellowship that will culminate in an intervention that helps to reduce frailty in older adults populations.

Jodi Watt

I am a postdoctoral Research Assistant at the University of Glasgow, working on a CSO-funded project using the Brain Health Index (BHI). BHI is an automated approach to assessing brain integrity using different types of magnetic resonance imaging (MRI) in combination. Each scan provides different information about the brain, thereby providing a more cohesive understanding of overarching brain integrity. We then assessed how this compared to more established metrics of brain health and are currently assessing how the BHI works in an NHS context.

I will soon be starting in an MRC-funded role to investigate drug-wide associations in the UK Biobank cohort. I am excited for this role, having already worked with this cohort, and am looking forward to continuing my exploration of this incredibly rich resource.

In the future, I hope to continue working to advance research in brain ageing and neurodegeneration. Outside of my day-to-day academic work, I would like to continue my involvement in public engagement initiatives and advocacy for diversity in science.

Alzheimer Scotland Student Research Programme

In October 2022, Alzheimer Scotland, with support of the SDRC, launched a new research programme to fund studentships for projects for dementia and brain health in Scotland. This new initiative is part of our commitment, in line with the Scottish Brain Health and Dementia Research Strategy, to make Scotland the best environment for research, including supporting the development of early career researchers (ECRs).

In the first year of this scheme, the Alzheimer Scotland Student Research Programme will fund two research projects at Masters level (MRes). This specific funding round will award studentships relating to the intersection of the SDRC research themes "Living with Dementia" and "Diagnosis". These MRes projects will be fully funded, including not only tuition fees and consumables but also a stipend for each student. This will support people to pursue a research career and develop ideas that otherwise may be difficult. We intend that the projects funded can be a starting point to more research, or form part of a piece of a bigger research puzzle.

One key aspect that makes the Alzheimer Scotland Student Research Programme different to other funding schemes is that it will offer more than a financial contribution. By working together with colleagues, volunteers and networks within Alzheimer Scotland, successful applicants will develop their research communication skills and be offered many important networking opportunities and they will be able learn about dementia from those with lived experience

Since applications opened in late 2022, there was a two-stage written application process followed by in-person interviews of shortlisted candidates in April 2023. The Selection Panel involved in shortlisting has been made up mainly of people living with dementia and current or former carers which includes members of the Scottish Dementia Working Group (SDWG) and the National Dementia Carers Action Network (NDCAN) with technical guidance from the SDRC Executive Committee. The Chair of the Selection Panel is Professor Martin Rossor, who is NIHR National Director for Dementia Research and Alzheimer Scotland Ambassador.

Martin Rossor quote:

We are not yet able to share who the successful candidates are. However we expect that these projects will begin in September 2023 Please keep an eye on the SDRC website and social media for an official announcement and be assured we will update in next year's Annual Report.

Scottish Neurological Research Fund

Launched in 2019, the Scottish Neurological Research Fund (SNRF) was established by the Chief Scientist Office (CSO) and the RS Macdonald Charitable Trust. The aim of the SNRF was to provide 'seedcorn grants' to early career researchers which would enable them to test innovative ideas related to neurodegenerative or neurodevelopmental conditions. Each grant could be a maximum of £15,000.

The funding was created to support researchers to develop ideas that may otherwise be difficult to fund. These included small innovative projects investigating the cause, prevention, treatment and/or management of neurodegenerative or neurodevelopmental disorders. It was also intended to develop existing partnerships as well as facilitate the development of new collaborations and sharing expertise and ideas between different academic institutions.

The SNRF has had two successful rounds of funding, in 2019/20 and 2021/22. Over both these rounds, it has provided 19 grants totalling almost £260,000.

These grants have supported researchers in various ways. See quotes from recipients which are just some examples of the impact the funding has made.

"I conducted a project looking at the relationship between frailty and long-term cognitive impairment after stroke. We used frailty and cognitive data from a previously conducted study; however, the funding provided by the SNRF allowed me to add brain frailty data to our study cohort. This brain frailty data added substantial insight into the potential mechanisms behind frailty's relationship with cognition and we will hopefully be able to use this work as a basis to conduct further research in this area." **Martin Taylor-Rowan, University of Glasgow**

"The fund was a wonderful first step enabling me to develop this area and prepare for a larger project. The TrIAD project was a pleasure to complete and is now the foundation that I will build the remainder of my career upon as I was able to establish new and exciting interdisciplinary relationships. Thank you to the SNRF for supporting me to pursue my research ambitions." **Dr Eileen Harkess-Murphy, University of the West of Scotland.**

"Receiving the SNRF funding helped me start research on an entirely new and important avenue of research exploring the links between nanoparticulate air pollutants and dementia to start building my own research niche. It also helped me to generate data for many other grant applications, and supervise a student who has now been successful in starting their own PhD. Without this award, starting to investigate the role of this important risk factor in dementia would not have been possible!" **Annesha Sil, University of Aberdeen**

NHS Research Scotland Neuroprogressive and Dementia Network (NDN)

The SDRC supports the NDN in their work to ensure everyone with a neuroprogressive condition or dementia has the opportunity of taking part in research. We share the same aim of collaboration and we know that inter-disciplinary research is crucial to advance understanding of the diseases and new treatments.

The purpose of the NDN is to help researchers from across a range of disciplines deliver research across Scotland in a wide range of healthcare settings, including primary and community care, mental health services and acute hospitals. They oversee a wide range of research studies which are conducted within the NHS and care home settings including: research into the underlying mechanisms and causes; prevention; new symptoms; disease-modifying treatments and better care. Their work provides clinicians early access to the latest treatments and technologies for diagnosing and treating disease, whilst offering more opportunities for people living with dementia and neuroprogressive conditions to take part in cutting-edge research.

In addition to cross-institution and cross-disciplinary non-commercial research, the NDN has also developed a portfolio of commercial research. Working closely with industry is an important part of keeping the NHS at the forefront of modern treatments and research. However, it should be noted that no individual profits are received by the network for working with industry. Commercial research is funded by pharmaceutical or medical technology companies and helps to generate further research capacity and cover study related and overhead costs.

For the 2022-23 financial year the NDN has:

- maintained a complex and changing academic and commercial portfolio, with 62 unique studies being supported across 8 health boards, often in multiple locations
- supported academic research studies such as TOPHAT (Ondensetron in Parkinson's and Lewy Body Dementia) as well as larger commercial endeavours with pharmaceutical companies such as Roche, Biogen, Abbvie, Novo Nordisk and Merck which has supported participants from all over Scotland to take part in high quality research into some of the most impactful medical issues we face today
- delivered a successful hybrid conference in September 2022, focusing on the patient and public involvement aspect of the NDN, that brought together researchers, charity organisations and those with neuroprogressive diseases to talk about how the research landscape has changed, and what benefits the inclusion of more voices in research delivery from protocol design to co-production of research have brought about. The talks were delivered in triads of researcher, research participant and charity representative
- supported "Partners in Research" by funding Dr Rosie Ashworth to spearhead the group and has produced an internationally renowned presence and the delivery of a co-produced book about living with dementia, which will be launched on September this year in the V&A in Dundee.

You can find out more about the Neuroprogressive and Dementia Network on Twitter: @NRS_NDN

ENRICH Scotland

Improving the lives and health of people living in care homes is a major priority, but care home residents are generally underrepresented in research studies. Enabling Research in Care Homes (ENRICH) aims to change this by strengthening support for research outside the NHS. It aims to raise the profile of research studies to benefit care home residents, their families and those that care for them across Scotland. It also supports the planning and delivery of this research. ENRICH has received its core funding from the Chief Scientist Office (CSO) since April 2021.

Supporting studies

ENRICH Scotland has increased research capacity in Scottish care homes by supporting study recruitment and acting as specialist advisors to researchers unfamiliar with care home research but designing studies for this environment.

ENRICH have supported 36 study teams (26 based in Scotland and 10 in England) from 19 Universities across the UK. Of the 36 study teams we have been approached to support, they have offered:

- Scoping for interest from care homes on the research interest register to assist with funding applications
- Recruitment into studies
- Advice on specific aspects of study development to ensure they are fit for purpose
- Sourcing of care home staff and residents into advisory or PPI panels
- Support with study development, recruitment, analysis and write-up

"You have been fantastically helpful - I think we would have been really stuck without you to be honest." **Marianne Cranwell, University of Dundee**

For the year 2022-2023 we have:

- Expanded the team of clinical studies officers from four to nine
- Expanded the network of care homes that are research ready from 100 in December 2021 to 177 as of 1st March 2023.
- Rolled out a certified process of recognition for all research ready care homes that is endorsed by the Care Inspectorate.
- Developed and issued a monthly newsletter to all research ready care homes in Scotland, which shares details of research opportunities in accessible language and disseminates publications, webinars and learning resources from research teams that involved care home staff and/or residents.
- Shared information on research in accessible ways that reach care home staff, residents and relatives via a blog and social media accounts (Facebook and Twitter).
- Developed and secured funding for the first ENRICH Scotland research study in collaboration with Edinburgh Napier University.
- Expanded the Patient and Public Involvement group to 25 members. The group is now called Research in Care Homes (RICH) Voices, with a salaried lead in place.
- Organised and held the first ENRICH Scotland conference, with over half of the attendees current employees of care homes.
- Continued to deliver a Care Home-Specific Research Forum which offers tailored peer support to researchers and care home practitioners at all stages of their research careers, with involvement from PhD students, early career researchers and senior academics.
- Wrote and published a guide specifically for care home staff in collaboration with Institute for Research and Innovation in Social Services (IRISS) on research involvement in care homes (available here: **https://www.iriss.org.uk/resources/reports/care-home-research**
- Raised the profile of care home research in Scotland by recording a podcast with IRISS FM **(available here: https://podcast.iriss.org.uk/enrich-scotland-supporting-research-in-care-homes)**

Next Steps

With subsequent funding from the Chief Scientist Office, the ENRICH Scotland team plan to prioritise the support of recruitment of care home residents and staff to relevant studies and continue to offer individualised assessment of support to research teams that are considering involving Scottish care home staff, residents and/or relatives.

If you would like more information about ENRICH Scotland, visit https://www.nhsresearchscotland.org.uk/research-in-scotland/facilities/enrich

Technologies for Brain Health and Dementia Prevention Special Interest Group

The SDRC and the Digital Health & Care Innovation Centre (DHI) have together created an opportunity where the communities involved in technological innovations for brain health and dementia prevention can come together to discuss how technology can best support people affected by dementia.

This group, known as the Special Interest Group (SIG), will leverage the wealth of knowledge, experience, and expertise that exists within Scotland to explore the role technology and innovation in dementia research. With now more than 50 members, the group brings together a wide range of expertise relevant to deliver truly interdisciplinary initiatives.

The Special Interest Group has the following aims:

1. Discuss ideas of how supportive technologies can best meet the needs of people affected by dementia.
2. Encourage discussions on theories and applications of emerging technologies with an emphasis on brain health and dementia prevention.
3. Explore synergies among ongoing initiatives in technologies for brain health to harness the power that Scotland hosts to contribute to the emerging challenges identified by the UK government.

Story of the Special Interest Group

The SDRC and DHI hosted a two-day event in June 2022. This event was designed to bring together the communities involved in innovation and allowed communication and ideas exchange among people from different disciplines, perspectives, and career stages. It featured keynote speakers and interactive workshop sessions, which focused on technologies for brain health and dementia prevention. You can find out more about the event here:

On day one, keynote speakers set the context via a series of lectures addressing issues around touch points for technology in the brain health movement, socially assistive robots, approaches to bring healthcare technologies from the lab to the real world, artificial intelligence to support adaptive technologies, virtual reality for everyday assessments and strategies to enhance coproduction of brain health technologies.

Day two started with a keynote on Design, Technology, Design Thinking and was followed by an engaging workshop during which participants were guided through a series of exercises. These started by unlocking their creativity and ended with ideas generation and project proposals.

Following this event, participants agreed to form the Special Interest Group, where those who wanted continue collaboration could do so.

The first formal Special Interest Group meeting took learning from the workshop and started to devise a plan for future activity. The group is in the initial stages of creating joint funding bids, with the intention of writing papers leveraging members' experience and expertise.

Next Steps

The SIG is now preparing a white paper which will present the views from academic and industry partners regarding how Scotland can meet the goals set by the UK Industrial Strategy and the Scottish National Dementia Strategy. This aims to pave the way toward future brain health technologies in Scotland. The paper is planned to be available in the summer 2023.

If you would like to get involved, visit the Special Interest Group page on the SDRC website (https://www.sdrc.scot/technologies-sig).

SDRC Conference 2022

The 7th Annual SDRC Conference was a two-day event, on 9 and 10 May 2022. It was held at the Radisson Blu in Glasgow.

We were delighted to get back to in-person meetings following the previous two Conferences being held virtually due to the pandemic. The theme of the Conference was around the diagnosis and detection of dementia. The Conference Chair was SDRC Executive Committee member Dr Terry Quinn.

We put together a scientific programme with something for everyone. There was a mix of traditional lectures quick fire presentations, workshops and debate. During the breaks delegates could learn about various dementia research projects taking place across Scotland from the posters that were on display.

Throughout the two days there were updates on activity from friends from Brain Health Scotland, ENRICH, the NHS Neuroprogressive and Dementia Network and, of course, Alzheimer Scotland who generously support the SDRC.

As always with SDRC meetings, we highlighted the incredible work of our early career researchers, and we ensured the programme included a lot of time for them present and network. We also received research updated from recipients of the Scottish Neurological Research Fund (you can find out more about this on page 31).

Presentations throughout the two days included topics such as: what works and what doesn't in dementia diagnosis, why more research is important, disclosing a diagnosis of dementia and how new technologies are supporting diagnosis. The Conference The keynote speech was delivered by Former First Minister Henry McLeish. In Henry's address, he discussed his policy campaign work with Alzheimer Scotland on the ensuring equity of care for people with advanced dementia, as well as sharing his own experiences of caring for someone who had dementia.

The SDRC Conference is not only an opportunity to learn and network, but also to celebrate the achievements of researchers in Scotland. Our first award was given to the most published researcher in 2022. This, coincidentally, was awarded to Conference Chair Terry Quinn. Terry used his presentation slot to share some top tips to other researchers on getting published. The conference closed with an award presentation ceremony for the best ECR speakers and poster presenters. A big congratulations to prize winners Louis Dwomoh, Danni Gadd, Jodi Watt, Lisa Davison, Raphael Gould, Natalie Jenkins and Michael Smith.

From the presentations delivered over the two days, the overarching theme was that the research being discussed was "only the start". The ambition for all researchers is that their research will not be confined to academic journals. The intention is that their findings will lead to further research, form an evidence base which will change practice or will form part of an education programme in the health and care sectors.

We are certainly fortunate in Scotland to have such a vibrant and talented dementia and brain health research community and the SDRC were privileged to be able to showcase some of their work at our Conference.

You can view a full summary of the SDRC Conference 2022 on our website. **(https://www.sdrc.scot/past-conferences)**

Become an SDRC member today

The SDRC is open to everyone who is taking part or is interested in dementia and brain health research.

There are many benefits to being an SDRC member. These include:

- Invitations to attend members only events to discuss dementia research
- Linking and networking with other members
- Opportunities to showcase your research and current projects to a wide audience
- Gain career advice from world leading dementia researchers

If you would like to become a member, please visit **www.sdrc.scot/join**

Alzheimer Scotland | Scottish Dementia Research Consortium

Scottish Dementia Research Consortium

A 81 Oxford Street
Glasgow G5 9EP

E SDRC@alzscot.org

@SDRC_research

www.alzscot.org