



Brain Health Scotland Strategy 2022



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Introduction

Our mission is to empower everyone in Scotland to protect their brain health and reduce their risk of diseases that lead to dementia.

The strategy outlines how we will:

- Provide health information and services that enable people to protect their brain and prevent disease in later life
- Work with partners across all sectors of society to further understanding of brain health and the personal and societal actions that can reduce risk of disease
- Use what we have learned from listening to those affected by dementia or known risk factors
- Recognise that health inequalities exist within Scotland and outlines how we intend to work with communities that are often excluded, discriminated against or disadvantaged
- Set out the necessary clinical approaches required to provide risk profiling, early disease detection and personalised prevention plans
- Explore the opportunity for improved data collection and disease and risk factor monitoring to form a world-leading national surveillance programme

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Scotland**

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Evidence base and rationale

There is growing evidence that the diseases that lead to dementia start in midlife, many years before symptoms appear. The onset of these diseases is driven by many risk factors that are both fixed (e.g. family history and genetics) and modifiable (e.g. life circumstances and lifestyle). Moreover, these factors can interact with other physical and mental health conditions (e.g. diabetes and depression).



Figure 1. Modifiable risk throughout life course, adapted from Livingston et al. (2020)¹

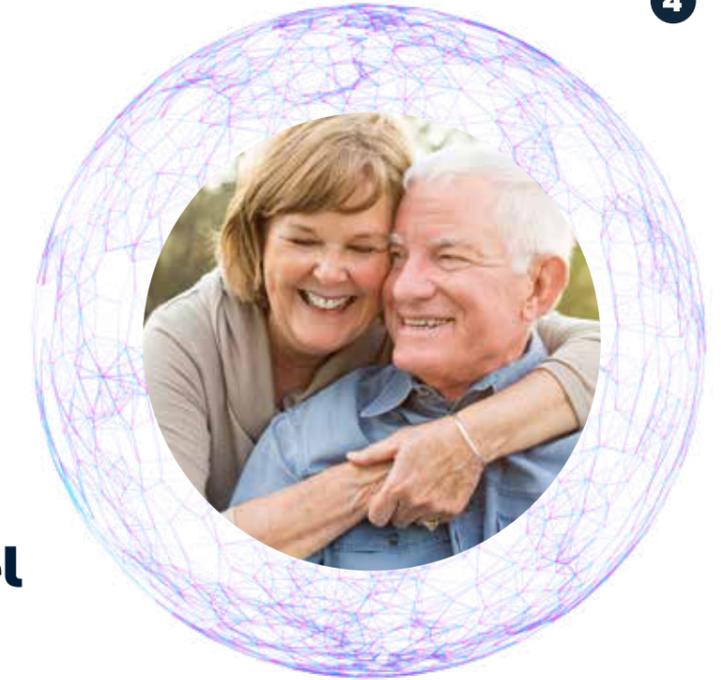
This shift in approach from primarily recognising neurodegenerative disease as a late life condition, provides a window of opportunity in which individuals and healthcare professionals can intervene to identify risk, detect early disease, and take preventative action to delay or prevent the onset of dementia in later life.

In Scotland, it is estimated that approximately 20,000 people were diagnosed with dementia in 2020, with roughly the same number of people dying with the condition each year². Research suggests that delaying the onset of dementia by five years could reduce prevalence by 50%³. For these people and their families, we have a great opportunity to make a huge difference.

To facilitate this personalised and population level preventative care, we must ensure our Health and Social Care systems are prepared to provide people with insight into their brain health, risk of disease in future and the interventions that could delay or prevent dementia.

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1 Lancet Commission on Dementia Prevention, Intervention and Care, 2020
 2 Scot Gov estimates (www.gov.scot/policies/mental-health/dementia/)
 3 Ritchie et al., 2017



The Scottish Model for Brain Health

The Scottish Model for Brain Health incorporates a suite of opportunities to engage people with the concept of brain health maintenance and protection, ranging from population level public health programmes, which engage communities at large, to a personalised clinical approach embedded within the NHS (see figure 2).

The strategy detailed below outlines the commitments required to achieve our aim of reducing dementia incidence.

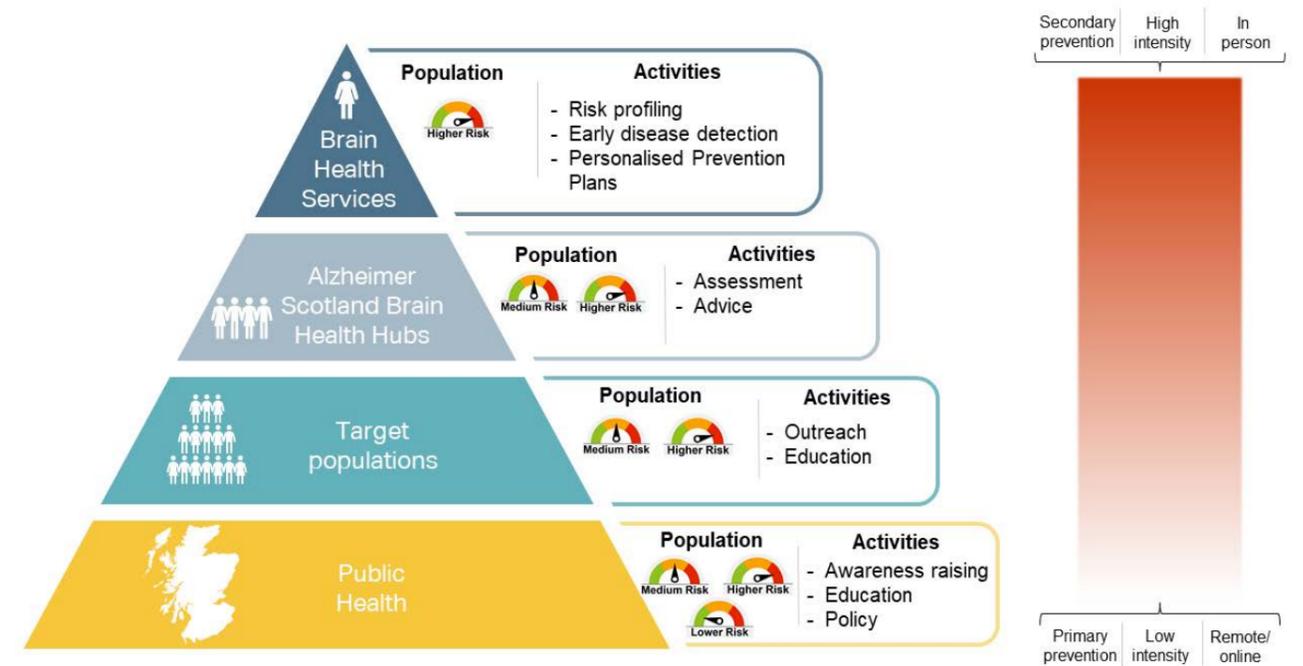


Figure 2. The Scottish Model for Brain Health

Strategic commitments

COMMITMENT ONE:

Awareness-raising and public health

We will increase public awareness that most types of dementia can be delayed or prevented by modifying life circumstances and lifestyle.

The foundation of this national commitment to improve Scotland's brain health lies in raising public awareness and understanding of modifiable risk factors, and the personal and societal actions that can mitigate them. In the 2020 National Brain Health Survey⁴ – a national Ipsos Mori poll of 1000 Scottish people aged between 20-49 – it was shown that whilst 70 per cent of people in Scotland are concerned about their future brain health, fewer than half have taken any action to protect their brain health. Furthermore, 1 in 4 people could not identify a single action they might take to reduce their risk of dementia.

A national effort is therefore needed to address this gap. Working in partnership with the Scottish Government, Public Health Scotland and NHS Scotland, we will deliver engaging public health campaigns to ensure that people in Scotland are fully empowered with the information and support they need to improve and maintain their brain health. We will work with pharmacists, opticians, dentists and allied health professionals to create a network of engagement opportunities across the health sector.

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We will coproduce programmes across the sectors of society that can further enable change – specifically in sports, leisure, nutrition, employment and education – to bring brain health conversations out of formal healthcare settings and into daily Scottish life.

We will work closely with education specialists to develop a suite of courses and programmes that enable individuals to learn more about brain health. We will develop programmes for all ages, from primary schools to adult and online learning, working in partnership with Education Scotland, local authorities, teachers, pupils and online providers.



COMMITMENT TWO:

Targeted engagement

We will collaborate with specific populations known to be at increased risk and encourage engagement with brain health services.

It is known that risk factors for poor brain health can accumulate in communities with shared characteristics or circumstances. For this reason, Brain Health Scotland will target engagement activities at specific groups known to have increased risk of poor brain health, or to experience barriers in accessing supportive information or services.

These communities include, but are in no way limited to, the following:

- Survivors of intimate partner violence, who may experience traumatic brain injury, depression and social isolation
- People with a family history of dementia
- People living in rural, deprived or isolated areas of Scotland
- People with a history of traumatic or repetitive brain injury, including former athletes in sports, for example, rugby, football, mountain biking and boxing.
- People living with disorders of substance and alcohol use
- People living in highly polluted areas or who have an occupational exposure to pollution; and people who smoke
- People living with other health conditions such as increased blood pressure, diabetes, obesity or hearing loss

Brain Health Scotland is committed to addressing health inequalities, relating to both protected characteristics and socio-economic factors. Prioritising these factors will ensure any new services reduce inequalities of outcome caused by disadvantage or deprivation. In addition to working closely with representative stakeholders, it may be appropriate to develop a range of 'pop up' or mobile service hubs that can respond to the areas of greatest need, as has been effectively modelled in Covid-19 testing and vaccination programmes. The Brain Health Scotland Equality Impact Assessment includes greater detail and can be made available upon request.

COMMITMENT THREE:

Open-access service to provide personalised prevention

We will establish open access health services to support people in understanding their risk profile and deliver personalised prevention plans.

A key priority of this strategy is the delivery of world-leading, open access Brain Health Services, and the associated development of a new clinical pathway that will offer risk profiling, early disease detection and personalised prevention plans. These Brain Health Services will engage a high-risk, pre-dementia population, reduce their risk of future disease and delay its progression.

Crucially, these services will be embedded within local communities to facilitate the greatest possible interaction with the Scottish public. We will develop spaces to provide community-based points of entry. Alzheimer Scotland is committed to transforming its existing Dementia Resource Centres and future developments to deliver this.

The services will be staffed by brain health trained nurses, doctors and allied health professionals who will facilitate personal consultations about current and future brain health. They will operate in partnership with Alzheimer Scotland Nurse Consultants, local health boards and relevant specialists.

New Clinical Pathway for Brain Health

The proposed clinical pathway will operate a triage system, whereby individuals will be offered the most appropriate level of ongoing assessment, monitoring and treatment according to their specific risk profile and goals (see figure 3). Some patients may be supported entirely within the Alzheimer Scotland Brain Health Centre, and others may progress to further levels of support offered in primary care or specialist NHS facilities (e.g., for brain imaging).

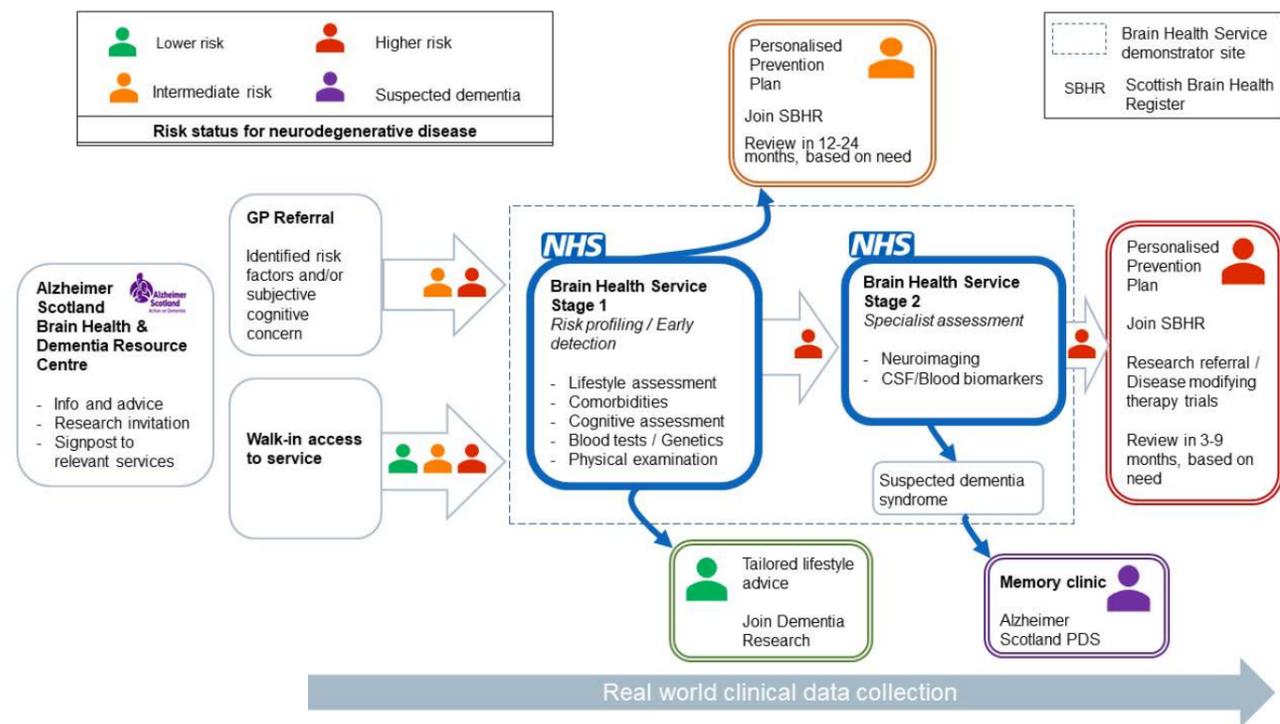


Figure 3. Clinical pathway

Advances in brain health research have given us a detailed understanding of the biomarkers with which to probe the health of the brain.



Personalising prevention:

When reviewing cardiovascular health, a doctor may advise changes in diet and lifestyle and perhaps prescribe a statin to manage cholesterol levels. The successful strategies for delaying or preventing Alzheimer's disease will be similar, likely a combination of lifestyle changes and, for some people, a targeted drug. These interventions will be tailored to the individual, addressing the processes that are driving their own personal risk.

We will work with health psychologists and behavioural change experts to support long-term behaviour change. This may include developing new digital solutions and apps to increase motivation and track success.

Following a personal consultation with a trained practitioner, patients will be offered a tailored programme of ongoing support:

- Low risk: individualised lifestyle modification advice and support - which may include smoking cessation, alcohol reduction, weight management or head injury advice
- Medium risk: actionable information given to GP for management of comorbidities (diabetes, hypertension, obesity, depression, hearing loss)
- High risk: offered appropriate and specific assessment and management (ongoing biomarker analysis, brain imaging and participation in clinical trials)

Importantly, everyone will be invited to join appropriate research studies, clinical trials, and a national disease surveillance programme (see Commitment Four). Our aim is that through this service, Scotland will achieve world-leading participation rates per capita for brain health and dementia research.

Measuring brain changes:

To detect the presence of early disease we need biomarkers; reliable, measurable characteristics that show early changes are taking place in the brain. In the same way changes in cholesterol and blood pressure can indicate future heart disease or stroke, we will use similar methods for evaluating brain health, allowing us to detect disease and intervene early.

Advances in brain health research have given us a detailed understanding of the biomarkers with which to probe the health of the brain. In Alzheimer's disease, we can measure levels of signature abnormal proteins in the cerebrospinal fluid or blood, we can use specialised brain scans to detect abnormal proteins and areas of lower energy use, and we can use basic brain imaging to check the health of important brain structures.

Professional training

To facilitate these service developments, we will lead and coordinate professional training for all healthcare practitioners relevant to the pathway. This will include the staff of Alzheimer Scotland, as well as primary care practitioners and allied health professionals. We will work closely with NHS Education for Scotland (NES) on developing appropriate training modules for those who may refer into the service or work within it. These programmes will ensure that pharmacists, nurse practitioners, GPs, psychiatrists, occupational therapists and other health professionals are fully equipped to lead confident conversations with their patients about brain health and risk modification.

COMMITMENT FOUR:

Disease and risk factor surveillance

We will create a surveillance system to demonstrate improvement and maintenance of brain health over time.

A comprehensive and purposeful data environment is crucial to deliver an accurate analysis of the factors contributing to dementia incidence and the success or otherwise of interventions.

Given that the diseases that lead to dementia progress over a prolonged time frame, many of the prevention activities detailed above will not yield a measurable change in dementia onset for many years after interventions have been made. Therefore, proxy measures will be used to compliment annual dementia incidence data, with the aim of demonstrating improved brain health outcomes on a national scale

Surveillance will take place across four domains:

1. Prevalence of risk factors for dementia and neurodegenerative disease
2. Expression of neurodegenerative disease through cognitive, functional and behavioural outcomes
3. Expression of neurodegenerative disease through biological markers of disease (e.g. MRI)
4. Incident dementia through catchment area record linkage



By measuring attitudinal, clinical and biological outcomes, the surveillance required for an annual Brain Health Scotland Surveillance Report is much more detailed and therein informative than simply identifying changes in incident dementia through existing record linkage systems. In achieving this depth of data capture and analysis we will have the greatest insights into the state of the nation's brain health upon which to base decisions at a policy level as well as provide projections for future needs.

Summary

This approach will transform the way we assess and protect brain health, and bring new opportunities for risk profiling, disease detection and early intervention. It will place Scotland at the forefront of the global effort to promote brain health and prevent dementia.



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