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GLOBAL  
BRAIN HEALTH  
INSTITUTE

**Brain Health & Housing  
Seminar Series**

# **Design for Ageing**



## GBHI/Respond Seminar Series on Brain Health and Housing

The Brain Health and Housing seminar series is a joint initiative between the Global Brain Health Institute (GBHI) and Respond, an Approved Housing Body (AHB) and service provider.

This series aims to advance our understanding of brain health as it applies to housing design, care provision and homeless services.

Conceptually, this area can be divided into two interrelated meta-themes, that of the built, (building, services, infrastructures), and that of the human (community, inclusion, social supports), with this series focusing on both these strands and how they interconnect.

Optimising one's environment, lifestyle and social community connection are both key factors in protecting brain health and preventing dementia, and generally contribute to individual and societal well-being. The value of approaching housing through the lens of brain health therefore, inherently touches on social justice, equity, community building and sustainable development.

# Seminar 1: Design for Ageing

The first seminar in this series entitled 'Design for Ageing' explored the biomedical, social, design and community considerations of age adapted living, including the relationship between brain health and the built environment and how green innovations can help older adults live healthier

and happier lives. It also examined how we can support people to age in place and ensure their continued involvement in the community. The seminar was an action orientated session that aimed to discuss, generate and disseminate best practice in the field.

The seminar took place online on 21st June 2021 and the contributors included:

## Opening statements

**Ian Robertson** - Founding Director, Global Brain Health Institute

**Declan Dunne** - CEO, Respond

## Keynote presentations

**Greg Walsh and Fiona Walsh** - Co-Founders, DDS Architects & Atlantic Fellows, GBHI

**Rutger de Graaf** - Innovation Manager, Pennemes and Het Mennistenerf

## Panellists

**Berenice Werle** - Geriatrician & Atlantic Fellow, GBHI

**Suzanne Timmons** - Clinical Lead, National Dementia Office

**Marissa Plouin** - Housing Policy Analyst, OECD

**Nora Owen** - Caregiver advocate, and Former Irish Minister for Justice, Ireland

**Tom Grey** - Research Fellow, TrinityHaus Research Center, Trinity College

## Moderator

**Áine Kerr** - Journalist & Co-Founder of Kinzen

# Introduction – Setting the Context

The focus of this seminar was on the emerging best practice in designing environments to support ageing in place.

Specifically, it examined the development of environments that are adapted for people with sensory or cognitive impairments, and of environments adapted to improve the overall quality of life.

The need for a focus in this area is well recognised. Article 9 of the UN Convention on the Rights of Persons with Disabilities requires 'countries to identify and eliminate obstacles and barriers and ensure that persons with disabilities can access their environment, transportation, public facilities, and services'. Article 19 recognises 'the rights of all persons with disabilities to live independently and be included in the community'. It is argued, that as a society in Ireland since the 1990s, we have made significant progress in enabling people with physical impairments to access the built environment. However, this is still not the case for those with sensory and cognitive impairments.

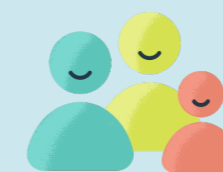
The official data on people with cognitive and sensory impairments is weak, as most data only records physical impairment. Looking at a range of sources to provide an overall sense of the numbers of people in Ireland with some type of cognitive and/or sensory impairment (ranging from hearing and sight impairment, dementia,

autism, Parkinson's and stroke survivors) there are over 380,000 people recorded. Separately, it is estimated that there are approximately 600,000 people living with disabilities in Ireland. As we have an ageing population, we can also estimate that the number of people with cognitive and sensory impairments is increasing, as the incidence of these impairments increases as people get older. The census data in Ireland recorded 630,000 people aged 65+ years and this group is projected to grow to 1,600,000 by 2051.

There are 64,000 people in Ireland with dementia and this group is projected to grow to 150,000 people. The costs are estimated at €1.7 billion and will grow to €5.1 billion. This includes costs to health and social care, but also costs to the individual, as 60-66% of people with dementia live in the community. Alzheimer's accounts for 65-70% of those diagnosed with dementia.

In terms of global numbers, this will grow from 50 million to 150 million over the coming years, leading to huge pressure on hospital systems.

Within this context, contributors to the seminar considered how we can ensure that the built environment is fit for purpose, for the people who live in it now and into the future.



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# Summary of Ideas and Perspectives Presented

The main points and ideas presented by the contributors included:

## Brain Health and the Environment: DDS Architects Greg Walsh and Fiona Walsh

Interaction with the environment is not passive. Individual elements can cause stress, fear and anxiety. People withdraw from spaces that make them uncomfortable. This results in unnecessary loneliness and leads to social isolation. It can also lead to homelessness and social exclusion. We need to really understand the impact of the environment on people with dementia and Alzheimer's and develop solutions accordingly.

Example:

**Most hospitals are not currently built and designed to support functional ability. They serve as a hostile environment to people with dementia as a result of bright lights, noise, reflective surfaces and uncertainties within the environment. This contributes to sensory overload, agitation, stress and anxiety, which can manifest in behavioural challenges. This can result in misdiagnosis, as doctors and healthcare professionals can end up responding to the behavioural challenges that developed as a result of the stressful environment the person finds themselves in, rather than being able to diagnose the symptoms the patient presented for initially.**

These experiences can lead to people losing confidence in their abilities to cope, which in turn leads to family and healthcare professionals losing confidence in the person's abilities to cope too. (This may be a reason why 40% of people diagnosed with dementia are currently discharged to a care home). This then leads to the person's further decline, as care homes are currently not designed to support functional ability, so the decline continues, leading to loss of dignity and independence.

For example, up to 40% of beds in acute hospitals are occupied by people living with dementia (diagnosed or undiagnosed) and they stay two to four times longer than people of a similar age, with 40% being discharged into a care home.

Similarly, care homes need to be built with design solutions to support people with dementia as 60-80% of beds in a standard care home are occupied by those living with dementia. We can design the environment to decelerate functional decline and support functional reserve of the brain, by leveraging procedural memory which is one of the last areas of the brain that is affected by dementia.

Using design to make places more predictable, easier to understand, and routine, makes it easier for people to manage. When you achieve this, you reduce premature loss of independence which will decrease health and care costs in the longer term. However currently, there is a naïve interpretation of the limited guidelines that exist to design for cognitive and sensory impairments. This is leading, for example, to environments that use primary colours to create contrast, producing gaudy environments in healthcare settings that often result in looking like primary schools.

Design of these environments should be much more aesthetically pleasing and fit for purpose. Allowing people to live with dignity and independence. These design solutions need to be incorporated at the start of a building and require master planning of layouts as well as, incorporating design finishes through decoration. Simple solutions like using black and white for contrast for example, can be applied and are not costly, they just require a deeper understanding of the problem being solved.





## Nature Assisted Health Innovation: Rutger de Graaf

A study in the Netherlands looking at indoor air quality found that most nursing homes and hospitals were at much lower levels than expected in a healthy environment. Opening windows in buildings located in city centres or using expensive air filters were not adequate solutions. However, there are many studies that have been conducted demonstrating that plants are really good at filtering air, which has led to plants being added to indoor environments through for example, the installation of green walls. This has had a dramatic effect on air quality and has resulted in plants being added to outdoor environments also.

As well as improving air quality, the aesthetic presence of plants has an effect on mood and well-being which is also well documented. However, many indoor plants will die through lack of sunlight and this raised the question of what effect sunlight also has on mood. Again, studies have proven that recreating sunlight and creating arrhythmic/biorhythmic lighting helps with relaxation, reducing stress and aiding better sleep.

In this approach to recreating nature indoors, another element that has also been introduced is animals. It was initially expected that introducing animals into health care settings such as nursing homes, would be problematic as for example, they would require extra care, may affect people with allergies and raise hygiene issues. However, after a year it was also proven to be a success. Cats, dogs, chickens and rabbits have all been introduced and 'cuddle sessions' are organised with residents. Bees have also been introduced outdoors (maintained by a beekeeper).

There have been additional unexpected benefits resulting from introducing animals. Volunteers for elderly care were on the decline in the Netherlands. We found that there is more interest in the green agenda these days, especially amongst younger people and introducing nature in this way, has attracted four times the number of volunteers to these settings. This is because the volunteering opportunity can be primarily for supporting green objectives albeit that the setting is a healthcare facility. Interaction with the wider/local community has also increased and organisations now come into the nursing homes and use the space to hold meetings.

Concern with the welfare of animals and their introduction to care settings was also an issue, specifically from animal welfare rights organisations. This has been addressed by inviting representatives to visit the settings so they can experience the outcomes and benefits of the initiatives first hand. Detailed protocols have also been developed regarding animal welfare and local collaborations such as taking in rescued animals, which has also counteracted some concerns as this supports animal welfare.

Further, additional studies conducted have also demonstrated that people are more creative when they live and work in a green environment. Simple solutions like placing plants indoors and even having pictures of nature, or a view of nature from a window can have beneficial effects including, aiding speedier recovery from diseases and illness. People also feel more autonomous, eat healthier (as they have a better connection with nature) and recover more quickly from surgery.

**Introducing nature to healthcare settings is an addition to incorporating better design solutions, as described by the presentation from DDS Architects. So, these approaches are complimentary and work together.**

# Consideration of the Practical Implications

Although there are regulations in place to achieve specific design standards in buildings, there is a lack of understanding and awareness of what is trying to be achieved in creating enabling environments. This means environments are not being built appropriately or inclusively for people with cognitive and sensory impairments. Some examples presented included highlighting how the addition of colour and contrast can make a room easy to read and guide yourself around. Such modifications and design elements can

create environments that enable rather than actively disable people with sensory and cognitive impairments.

Similarly, a thoughtful approach to the incorporation of nature into care environments can enhance both the measurable quality of the environment, and also the health and wellbeing of the residents. Interestingly, these approaches can be extended to the wider community, integrating the care setting and its residents into the community.

# Conclusions and Recommendations

As we have an ageing population and the number of people with cognitive and sensory impairment will inevitably increase as a result, master planning from the outset of building and creating neighbourhoods and communities, will achieve the best, most inclusive outcomes.

The epidemiological knowledge base and data collection on cognitive and sensory impairments requires improvement. We need to use the information to understand how our housing and healthcare settings need to be developed to meet current and future needs.

Investing in buildings now, is cost-effective and will reduce long-term care and health costs, as people can remain independent for longer.

Develop clear guidelines and technical documents on how to apply good design principles to the physical environment complemented by introducing nature into healthcare settings and communities.

Develop demonstration projects to apply, test and evaluate these principles and document the process and outcomes.

Include experts and policymakers from the outset by setting up an 'oversight' group who can question and investigate the approaches being developed. Their early involvement will bring them on the journey and raise awareness and understanding of the benefits from the outset. This is essential to effect policy change.

## References

Material here is based solely on the seminar presentations and discussions.

## More Information

For more details about the GBHI Respond partnership and Brain Health and Housing seminar series please visit: [www.brainhealthandhousing.ie](http://www.brainhealthandhousing.ie)



## About Respond

Respond, an Approved Housing Body and service provider, has been working all around Ireland for over 40 years. Our vision is that every family and individual in Ireland will have high-quality housing as part of a vibrant and caring community. Housing and decent accommodation, in the areas where people want to live, are central to improving people's lives and enhancing the health and well-being of society.

15,991 tenants live in 7,084 homes across the 26 counties that we either own or manage; of these, there are 6,264 Respond social housing tenancies.

Respond also provide a range of services for families and individuals within our communities. This includes emergency accommodation with 24/7 support for families who are homeless in six Family Homeless Services, three Day Care Services for Older People, 17 Early Childhood Care and Education, Family Support and Refugee Resettlement services. Our aim is to provide person centred services to support people to achieve their goals and reach their full potential.

[www.respond.ie](http://www.respond.ie)



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## About the Global Brain Health Institute

The Global Brain Health Institute (GBHI) is a leader in the global community dedicated to protecting the world's aging populations from threats to brain health.

GBHI works to reduce the scale and impact of dementia in three ways: by training and connecting the next generation of leaders in brain health through the Atlantic Fellows for Equity in Brain Health program; by collaborating in expanding preventions and interventions; and by sharing knowledge and engaging in advocacy.

We strive to improve brain health for populations across the world, reaching into local communities and across our global network. GBHI brings together a powerful mix of disciplines, professions, backgrounds, skills, perspectives, and approaches to develop new science-based solutions. We focus on working compassionately with all people including those in vulnerable and under-served populations to improve outcomes and promote dignity for all people.

GBHI is based at Trinity College Dublin and the University of California, San Francisco. To learn more about GBHI, please visit us on [gbhi.org](http://gbhi.org) or follow us on X @GBHI\_Fellows.

# Notes





