

New Knowledge

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Transcript

Professor Ian Robertson (Ian)

Dr Catherine Jordan (Catherine)

Wambui Karanja (Wambui)

Dr David Loughrey (David)

Maurice (voiceover) 0:09

The Global Brain Health Institute is a unique collaboration between researchers in Ireland and the US. It brings together practitioners from many different disciplines such as artists, psychologists, music therapists, and neuroscientists all dedicated to protecting the world's aging populations from threats to brain health. The institute brings together this mix of disciplines, professions, backgrounds, skills, perspectives and approaches to develop new science based solutions to the challenges presented by dementia. The mission of the Global Brain Health Institute is to reduce the scale and impact of dementia around the world by training and supporting a new generation of scientists and researchers working to improve the quality of life for people with dementia. In this program, we hear from Professor Ian Robertson, who is the co-director of the Global Brain Health Institute, and three researchers from the program who are working in very different ways to improve the lives of people living with dementia.

Maurice (voiceover) 1:09

Dementia is an umbrella term and refers to different conditions, which all involve a gradual and long term decrease in cognitive function in ways that are severe enough to affect everyday life. Dementia is rapidly increasing around the world. By 2050, the number of people living with dementia could triple overwhelming families, partners, communities, public health care systems and economies. In Ireland, more than 55,000 people are living with dementia.

Ian 1:43

Hello, I'm Ian Robertson, I'm co director of the Global Brain Health Institute at Trinity College, Dublin.

Ian 1:50

The Global Brain Health Institute is I think, literally unique in the world. It's a joint program between the University of California San Francisco and Trinity College, Dublin. And so our job between jointly running this program where we have 20 fellows each year, coming here for a year - 20 here, 20 in San Francisco - meeting several times a week over our telepresence suite here, all committed to finding, applying knowledge to change practice, at the policy level where possible, across the world, particularly in lower middle income countries to try and build brain health and thereby reduce the prevalence of dementia.

Ian 2:41

We're not primarily a research organization, although all of our faculty and academic staff in both centers do original research and have their own research teams. But we also work around the fellows who are early to mid career career professionals from a whole range of backgrounds whose job it is to become expert in applying the science and applying knowledge to changing practice.

Ian 3:10

And so that means we have neurologists, we have music therapists, we have lawyers, we have architects, we have social scientists, we have health economists, we have journalists, we have artists, we have writers, and the aim here is to create an awareness of brain health and an optimism about brain health, through raising public awareness as well as through disseminating knowledge. And so our hope is that these people will be working to really change the climate of opinion and practice in both preventing dementia, but also dealing with it. Because it is a Cinderella disorder. And, you know, for example, there's only 10% of the research funding goes into dementia as goes into cancer, and we - our health systems are already and social systems are already struggling to cope with existing levels. I mean, the whole economies are going to suffer because of this, not to mention the individual human suffering or the carers and the people themselves.

Ian 4:19

And so our aim is to have, you know, 1000 fellows in place across the globe, so that as, as science throws up, and scholarship throws up new approaches, we will have in place a whole cohort of people who can disseminate them and who know about health economics, who know about policy change, who know about advocacy, who will be in a place to try and influence governments to produce science-informed policies.

Ian 4:51

So, two of our fellows who were architects, Irish architects based in the UK, but about to move back to Ireland, and they they identified a number of aspects of buildings, including hospital buildings - but also people's homes and nursing homes - that actually create some of the symptoms that we would otherwise attribute to dementia. So they've identified - we have very, very good regulations now in buildings for physical disability, but we don't have the same regulations for sensory and cognitive deficits.

Ian 5:25

So for example, they did an audit of an Irish town, showing in which ways that it kind of prevents the normal functioning of people with limited sensory and cognitive deficits. But even in a modern hospital in Dublin, in the geriatric unit, they saw, for instance, there was an area very - they tend to be white surfaces, shiny - and they saw this really highly reflective floor. And to a person with failing sensory or cognitive deficits, it looks like water or ice. And so they become slightly disoriented, or frightened, or appear to staff to be disoriented. Or, for instance, a door that you would like them to use, doesn't have any color contrast around it, and so they have difficulty finding where they need to go - the toilet, for example. And conversely, doors, you don't want them to go out, you can disguise them by making them flush. So you're preventing secondary disorientation which actually can have biological effects in the brain, you know. A brain can keep functioning for many years, if you can keep it without certain stressors. So that's why, for instance, some older people can appear to be fine, and then they move house late in life, and suddenly, everything falls apart, and they become disoriented. And that's because our brains are attuned to the environment. And the networks in our brains are fragile at a certain stage of the disease. And so you can, and so that can set in line a cascade of events in the way of a broken hip can for an older person, such as they never, never come out.

Ian 7:20

So our architect fellows they are working with health services, but also with the WHO, and with architectural organizations across the globe, to get introduced these guidelines for sensory and cognitive impairment, which, you know, if - not if, when that's done will significantly reduce a proportion of the people who end up unnecessarily disoriented with, if you like, their disorientation and their confusion, being wrongly attributed entirely to their own heads, when in fact it's an interaction with the environment. So that's one example. Second example is we have a neurologist in Brazil, working in poor areas of Brazil, where there's high levels of illiteracy. And so her research is looking to see whether adult literacy training in people, to train them to read and write, does that produce changes in the brain measured by MRI functional imaging? Does it produce changes, say between the connections between the memory centre, the hippocampus and other other parts of the brain? Does that produce the kinds of changes that would lead one to believe that that will, if you like, strengthen the resistance of the brain to dementia? So she's in the middle of that project? But if that proves to be true, then she can go to Brazil - to the regional government in Brazil - who might otherwise say, "what's the point in doing literacy training with poor people who are, you know, they don't need to read and write, there's no economic, you know, necessity for them,

it's going to be expensive to do" - if she goes and says, "actually, another reason is, if you do this, you're going to reduce the rate of dementia, which is going to reduce the drag on, you know, the terrible pressure on the health service, etc." So that becomes research with a real policy edge to it.

Ian 9:17

And then we have another fellow, a lawyer who's looking at the legal issues to do with payment for care for all the complexities of that. So as a huge amount of scholarship, we have a journalist from Brazil, who a wonderful young man who gave up his undergraduate university degree to look after his grandmother who was diagnosed with dementia, and he's since become a best selling author in Brazil, writing books about his experience with his granny, writing about dementia, humanizing the whole thing. Because he felt that the whole encounter with the medical world was quite dehumanizing for us. So he is a wonderful advocate, and he's now studying health systems around the world to see the extent to which you can improve communication among health care staff, to humanize the experience of you know, of people with dementia and their families.

Ian 10:25

So, it's a question then of, of being optimistic about being able to control our own brains, and also to mitigate the effects of disease by finding ways of interacting with people with dementia, that activate parts of their brains that are still there, but maybe just not accessible. And you know, music and dance - we have dancers, we have a couple of dancers as fellows - music and dance are great ways of doing that.

Ian 11:01

But also the, the whole attitude of humanizing, and not not buying into a kind of completely medicalized model, where you just say, "oh, that person's no longer there - that's dementia". There's always a way of interacting, there's common humanity in the emotional responses. The day to day memory might not be very good, or might have gone completely, but the emotional memory still lingers on. So it still is there. So they'll get that - they might not remember why they're feeling good, but they will have the feel good experience.

Catherine 11:56

So I'm Catherine Jordan. I am a psychologist, and I'm a pianist, and I'm a senior Atlantic Fellow at the Global Brain Health Institute. And in my research, I look at music, dementia, and brain health. So my research takes two tangents - I look at how music, playing a musical instrument, can keep your brain healthy as you get older; and I also look at music in terms of how it can help someone living with dementia, and how music can evoke autobiographical memories, and help with some of the behavioral symptoms of dementia, so help with anxiety and stress and different things like that. I remember when I was - it was during my master's degree. I was studying neuropsychology, a flatmate of mine showed me this video of a man, it went viral at the time, a man called Henry who was taken part in the Music and Memory Project in the States. And as part of this project, they went into care homes for people that are living with dementia, and they were given iPods, the people with dementia, and they listened to a song, or series of songs that are really meaningful to them. And this man, Henry heard a song that he played as a jazz musician in his early life. And Henry before this was sitting, you know, in a seat, and he wasn't very responsive, he wasn't talking to people around him, he wasn't engaged with anyone around him. He's just sitting by himself. And he heard this music, and instantly he was transformed. He sat up in a seat, he became so much more alert, he engaged, he started chatting, he started, he started actually singing some of the song. And this is from a man who was sitting unresponsive to this man being completely awakened, and just simply by listening to one song. And so I seen that and I was absolutely fascinated. And given my background in cognitive neuroscience, I was thinking there has to be something going on here - what's going on with Henry? Like, what is happening in his brain that he's having such a positive response to music?

Catherine 13:39

And so then I started my PhD and I started having more conversations about the impact music could have on people with dementia. And that's when I joined the Global Brain Health Institute. And we started a series of experiments and studies to actually look at this in more detail.

Catherine 13:58

I guess, there's two tangents, and two main goals, I would have long term of my career and long term with my research. The first one is that, you know, the area of music and dementia in particular, the benefits of music for

dementia is very much so under researched. And we have very little understanding of actually why music is so beneficial for people that are living with dementia. And there's very little scientific evidence that actually supports it. But what we do have a huge body of personal anecdotes that support the use of music with dementia, and I've heard countless stories and from people who are living with dementia and their family members of the lifeline music offers to them. But what we don't have is the scientific evidence. And so it means that music isn't something that's commonly known about as a treatment for people living with dementia for the behavioral symptoms. And people I think as well and generally in the public have a very low awareness about the potential music can offer to their loved one with dementia. So part of my research, what I really want to do is I want to address that gap in our knowledge in terms of our lack of understanding of what music actually changes in our brain, how it helps someone with dementia. And then with that, what I want to do is I want to make sure that - to raise public awareness, essentially. And music, you know, it's freely available, anyone can have it, it's right at our fingertips now, particularly with the advances in technology. So it's something that can be very easily added to someone's life for dementia. And it can have such a huge benefit for their life. It's such a simple, simple means. So it's something that I really would love to raise awareness about.

Catherine 15:35

And my second aspect of my work that I would love to have is specific to Ireland. So across the States and across, and even in the UK, and across Europe, there's multiple organizations that are offering music-based services for people living with dementia. An example is Playlists For Life in the UK. And what they do is they train people and care homes, family members, whoever would like to take part - and they train them to become what they call music detectives. And what they do is they sit down with their loved one, or whoever they're providing care for, and they design a playlist of personally meaningful music with them. And essentially, that becomes their treatment, their musical treatment for their symptoms of dementia. This isn't something that's available in Ireland, and I think that one thing I would love to do is develop an awareness around becoming a music detective, if you will, and also ideally try to lobby a few people together and develop a similar type of program in Ireland. So that we would have the services in place to help people living with dementia. And I'll just give you an example of Playlists For Life and the wonderful work they're doing. They've been so successful in implementing music based services for people all across the UK, that there's GPs now in Scotland that are prescribing music for people with dementia over drugs. So it's been such - they've had such a huge impact. And it's something we can easily do in Ireland, because I believe music is central to our Irish identity and our culture, and something people have such a huge interest in. And it's very much a lifeline of many people with dementia. So I'd love to implement that in Ireland and something similar.

Catherine 17:07

I can go to one part my research currently at the Global Brain Health Institute, where we look at music and brain health. So we look at how playing a musical instrument can keep your brain healthy as you get older, and ultimately delay the onset of dementia. So what happens when someone plays musical instrument is that it engages multiple aspects of their brain. Our brain is split in two hemispheres, we have the left hemisphere, and we've the right hemisphere. And so the left hemisphere is said to be responsible for logic and scientific endeavors. And the right hemisphere is said to be responsible for creativity and artistic endeavors. So what happens when someone plays musical instrument is they need the analytical side - the left hemisphere - and they also need the right side of the brain, the right hemisphere - the creativity. And so what happens when someone plays musical instrument is it activates both sides of the brain, and it leads to an enlargement of the bridge that connects the two sides, which is called the corpus callosum. And so repeatedly playing a musical instrument in your early to midlife actually causes this bridge in the brain, this corpus callosum to get bigger in a musician's brain. So playing a musical instrument in your early to mid life structurally changes the shape of your brain - your brain gets bigger. And what we've found, and what research has found, is that in early midlife this also transfers to other aspects of cognition. So musicians who are actually playing a musical instrument, they have these structural changes, but they also show benefits in terms of their memory and various aspects of their memory, and their cognitive abilities. So how fast they think, their capacity of memory, how much they can remember, how fast their reaction times and their focus of attention is better for a musician who's played a musical instrument for a number of years. And so what we're exploring now with the Global Brain Health Institute, is whether these advantages in early to mid life of playing musical instruments are actually sustained in later life, and whether all this greater activity that's happening in the brain when you play a musical instrument, keeps your brain active,

keeps it really healthy. And so it means that, because your brain is so active and healthy, it can delay the onset of dementia.

Catherine 19:18

I have spent time with Playlists For Life, and I've had the privilege of taking part in their training program over there. And I think it's something that someone can really do quite easily themselves, is develop this playlist. It's actually a very enjoyable task. Really what you're doing is you're spending time with your loved one, and you're sitting down with them, and you're just having a chat about music, say for instance, music that if they were an acquire as a child, a particular song they liked, if there was a song and they had the first dance at their wedding. So what you're doing is you're pulling out songs that are really, really, specifically meaningful to them, so that when they hear that song, they're instantly transported back to this particular time in their life that's really meaningful to them and evokes all these positive emotions. And you're trying to put together those songs into one playlist. That's essentially what you have to do.

Catherine 20:08

Music, particularly if music is very important to someone in their life, then absolutely music can - like, as I said, is that lifeline for that person, and it brings them back to that person, you know, that they were previously. It really engages themselves with their former self, and I think can be very powerful, both for themselves and also their family members.

Catherine 20:34

So one of the main reasons I applied to the Global Brain Health Institute was the multidisciplinary nature of the team. I think what's fundamental is breaking down boundaries, and to really break down boundaries, it's the only way you can foster understanding. And I think it's, you know, it's commonplace, particularly in the field I work in is that you work in a lab, and you work in a lab with individuals who hold the same views as you have. Joining the Global Brain Health Institute really challenged that. You know, we really broke those boundaries, and we broke away from the common mould that is in academia to work with people who share your views. And by working with people with contrasting views, you're challenging yourself, and you're challenging your own views. And I think I've really, I've really benefited massively from working with a team from many different cultures, but also many different backgrounds and scientific backgrounds and beliefs they'd have, and we can't see challenge one another. But it's true, those challenges, that you actually open your mind a little bit. You see things from different perspectives, and you think about things maybe you hadn't taken into consideration before. So that's one of the major benefits of joining the Global Brain Health Institute, and it's fundamental to my understanding of dementia and has really driven my research to date.

Wambui 22:05

My name is Wambui Karanja. I studied psychology and I've done research on perceptions of dementia in Kenya, and I worked with informal caregivers in an older people care home. So it's people who are not trained in caregiving, really, but then they just go on because it's the job they have. They're not highly educated, they just get the job to look after older people. So most caregivers are mostly partners - so spouses of people with dementia. Care might fall on children of the people with dementia, but I worked with actual people who are employed to work in, in a home run by Catholic sisters in Kenya. So they employ young women to look after older people from different parts of Kenya.

Wambui 23:03

Most people with dementia are taken care of at home by their families. There are very few nursing homes per se, or older people care homes. The one I worked in was mostly supporting all people who had been neglected by the community, so they just bring them in. In the Kenyan education system, the way you chose what to study - you give four options to the government of what you want to study. My first three options were Nutrition and Dietetics, but my fourth option was psychology. And I got my fourth option, but it proved to be a really useful part of my life, because when I was doing my degree, my father was diagnosed with early onset Alzheimer's disease. And that's when like, I realized the gap that exists for people with dementia, and we didn't have any knowledge. And just getting that diagnosis made me dig up a lot of knowledge to be useful for my family. And for other people.

Wambui 24:14

I not only support my family with knowledge and what to do. I've also volunteered with the Alzheimer's and dementia organization in Kenya. And I've been a volunteer since the organization was started in 2016. So it's running support group meetings for caregivers, and just helping them just go through the journey of caregiving and giving them information, giving them psychological support.

Wambui 24:50

We have a pilot project and my project will be about brain health and education, and brain health back home. When people develop brain disorders, so it might be from traumatic brain injury, from dementia, epilepsy, when you don't get that explanation of what's going on, you'll give that meaning through what, you know, through what you think. And some of the meaning we'd get back home is spiritual causes of disease. So there's witchcraft, there's family history, our culture really values those things that have been done for millions - not millions, probably thousands of years. So if the family develops a sort of like a brain disorder or something, it will be blamed, spiritually or culturally. So I think that filling that gap of lack of brain health education gives people meaning on what's going on, and helps them cope better and understand what's going on.

Wambui 26:04

I'll be conducting research on actually what kind of education to provide, because as a brain, talking about the brain is not something we do a lot. We don't talk about our own brains, really. So I'm just trying to get about how people talk about the brain. I'll be conducting research on how we talk about the brain, and that will inform education resources that are tailored to Kenyan needs of brain health and education, if that makes sense.

Wambui 26:32

For me, it's first dispelling myths. It's the myth that dementia is caused by witchcraft. It's the myth that people who develop epilepsy it's because it's something that is embedded in, in the spirit or in the culture. It's dispelling those myths. There's something going on in your physical body, and you can seek help for that, and you can seek support for that. So just dispelling those myths and getting people to understand what's going on in their brain so that they can seek help, it's the empowerment of the community to talk about their brains and the brain health aspect of life.

Wambui 27:14

It would be, I think, a selfish act for me to sit down in a room and design education programs for brain health without really asking people, "what do you want to hear, what do you know?" Right? So it's going to the community and co-creating with them what they want to know about, you know, what they need to understand. So I'll be working with people in the communities and understanding how we talk about the brain, in my own culture, and then using scientific knowledge that already exists, and filling that gap, and co-creating with that knowledge.

Wambui 28:01

There is a big interest - and it's growing, and I'm glad it's growing - on public, patient involvement, in mostly medical research. But the aspect of actioned research, where the researcher shares their privilege, but then comes in as a co-creator of knowledge, right? So just making everyone you're working with a researcher, right? So every aspect of what you're creating, they are creating as well. And I think that brings about - it empowers people who will never have thought that there is such as do research work, which I think is really important. But also opens up people's mind and they realize that what they know is actually the right thing to know, and it's the right knowledge that's needed to inform education, and policies, and all of that. Because when I have worked in research before, there has been privileged voices, if that makes sense, like there are voices that are always heard. But then I think, working at the levels of the community and getting the voices included in designing research, disseminating research, and writing it. I mean, I think I've not yet done that kind of work before, but then I'm in the design part, and I think that brings - people see themselves in information, if that makes sense.

Wambui 29:39

The voices of people with dementia - we should be advocates for people with dementia to advocate for themselves at some point. I mean, that's a challenge because most of the time, people with dementia get a diagnosis late, so they lose capacity to even consent and all that. But then if you can empower people with

dementia to be able to speak up for themselves, I think that's the best kind of advocacy we can have in dementia. I can speak up, then I have never had dementia, right? And I can speak about the experiences, but then I'm constantly talking about them. But I think the ideal situation is whereby this person with dementia speaks for themselves. So at this point, they are voices with dementia, right, and advocating for them. But then at some point, we'll have to give them that space to occupy, and center them in the work.

Wambui 30:47

I mean, one of the most painful bits of my life was when my dad was diagnosed with dementia. I constantly asked what, what will he want. I tried to speak, to find out what he wanted. But then there's a big gap that was lost between him starting to lose his memory to when he got a diagnosis - and so a big gap for him to advocate for himself, for what he wants, for how he wants to design his life when he loses capacity.

Wambui 31:28

I'm from Africa, and mostly, like, our ways of knowing are at the very bottom of the hierarchies of knowledge. And I would like to see research that values models that are not Western models, right, where we go speak to people like me, where I come from, and the way we know about dementia is also valued, and is also - even though sometimes it's causing harm - it's investigated and recorded. That this is how people knew about dementia before we introduced dementia as a brain health illness. So I'd like to say different ways of knowing in different parts of the world. As anything, scientific models of knowing - the biomedical model of knowing dementia - will eventually probably take over. But then what do people know right now? Right? When there's no awareness of dementia, how are people talking about dementia? I know there is good care being provided for with dementia in places where people don't call it dementia. Right? How are they doing that? So it's just such kinds of knowing being valued alongside the medical models for dementia.

David 32:50

I'm

David Loughrey. I'm a research psychologist, I'm focused on the relationship between hearing loss and changes in cognition, and interested in seeing if there is a potential association between age-related hearing loss and cognitive decline and dementia. I did my PhD here in Trinity College, with Brian Nolan. And then afterwards, I started a fellowship in the Global Brain Health Institute, so that's where I am at the moment.

David 33:21

Initially, I didn't, I didn't have planned to go into research. I was born with a hearing loss, and I did my undergraduate degree here in Trinity, in psychology. And then afterwards, I did a research internship here in the Institute of Neuroscience in Trinity. And I became very interested in cognitive ageing, and when people - certain researchers, one researcher in Johns Hopkins - reported that there may be an association between hearing loss and changes in cognition, and possibly hearing loss and dementia, I found it fascinating. And I started reading more literature on it, and how there may be all sorts of potential mechanism for linking hearing loss with dementia. So I just became fascinated with that, and I decided to go for a PhD. So that's how I got into this line of work.

David 34:16

So my work specifically is focused on looking at differences in cognitive function with hearing loss. So I'm very interested in seeing whether a difference in cognitive functions such as attention, or memory with hearing loss, and then maybe that will give us an idea as to what the relationship is between hearing loss and cognitive decline or dementia. So for example, right now, in say epidemiological studies, where you're looking at cohorts of a few thousand people, we tend to find an association between hearing loss and dementia, and cognitive impairment, but we're not exactly sure what the association is. So for example, it could be that there could be another factor that causes both hearing loss and dementia, for example, such as atherosclerosis, like vascular factors. Or it could be that hearing loss directly affects cognition. So the key to understanding that is really just to try and get more information. There have been few neuroimaging studies that have found that hearing loss is associated with differences in the brain, specific to auditory processing, also in whole brain size, and in areas of brain associated with memory. And then there have also been a very, very small number of intervention studies that have found that hearing aids and cochlear implants can help maintain or improve cognitive function. But the results in those can be quite mixed. Other studies have looked at this particular relationship and found no benefit at all. So it's

very, very nebulous at the moment. So really, the key right now is just to get more information on that relationship. So like I say, it could be that there's another factor that causes both hearing loss and cognitive decline, or it could be that hearing not directly causes cognitive decline through say, for example, changes in the brain, or when people have a hearing loss they have to work hard mentally to follow conversation, so maybe that diverts resources away from other parts of the brain. So it really is, right now it's a little bit of a mystery, it's a little bit of a puzzle.

David 36:37

I suppose the first impact is just to raise awareness of hearing loss in general. So one of the things is that hearing loss is highly prevalent among adults over the age of 65. So the World Health Organization estimates that one in three older adults has a hearing loss - a disabling hearing loss - or say, for example, in the US, it's estimated that half of older adults have a clinically meaningful hearing loss. But the problem is that it seems like a very small portion of people who benefit from intervention actually get hearing aids, for example. So one of the things is just to raise awareness that hearing loss is quite prevalent, that a lot of people will benefit from treatment, possibly.

David 37:24

So the second impact would be, I would like the main benefit to be for science. So I would like to just try and uncover why is there this relationship between hearing loss and differences in cognition? Right now, the idea of research on dementia is still a thing that in a sense we're trying to catch up. So, for example, dementia healthcare costs more than stroke, heart disease, and cancers combined. So the impact of dementia is quite big, it's quite significant. It is expected to affect 130 million, I think, by 2050, and the cost by them will be by 2 trillion a year. So like, that's the size of the UK economy you know, it's a massive, massive impact. At the moment, in a sense, we're trying to catch up with, say, cancers and strokes in terms of research. And we're trying to understand more about this disease.

David 38:35

A very important paper that came out in 2017, the Lancet commission looked at nine potentially modifiable risk factors, and they estimated that effective management of those risk factors could prevent one in three cases of dementia. But it's potentially modifiable risk factors, so we need more work to see will intervening in those factors have this outcome.

David 39:06

So actually, the interesting thing was that the biggest - in that study - the biggest estimate was for hearing loss. Then other risk factors would be say, for example, exercise, hypertension, education, depression. So they're the key things, but then one general advice, for example, would be "what's good for the heart is good for the brain". So it's about maintaining a healthy lifestyle overall.

David 39:34

One of the key barriers for people who are trying to get a hearing aid would be the cost of it. The cost can be quite prohibitive. But in the United States, for example, they recently launched the Health Care Act to try and deregulate the selling of hearing aids, so these hearing aids can now be sold over the counter. Let's hope that in the longer term that will allow for hearing aids become cheaper. So right now production of hearing aids doesn't necessarily meet the potential demand. But the key is to raise awareness of that. So right now in Ireland, for example, as I understand it, people have to pay a certain cost, and they can get a certain amount back in tax. But it would be beneficial if people were more aware of hearing loss, and maybe the potential impact that it can have.

David 42.35

So people with a hearing loss, myself for example - I was born with a hearing loss, I have a profound hearing loss so I am very reliant on lip reading. Particularly for people with a hearing loss, we rely more on our minds to understand what people are saying. So you can imagine that for someone who has a cognitive impairment or dementia, how challenging it must be to try and follow a conversation. So, say, if that is an issue, just to be more aware of that. Ways to help people in that situation, when you're speaking to them, speak face to face so they can lip read, make sure there is good lighting in the room, and also ways to reduce background noise.

Ian 43.23

Dementia is a huge - it's a very very heartbreaking thing for people to have. It's happened in my own family, in my wife's family. If it was something that was striking a much younger person, it would achieve a much greater impact. Because it more affects much older people, there's a tendency for us to think "that's just a normal part of ageing". It's not a normal part of ageing. It's correlated with ageing, but it's a potentially remediable condition, at least in the future. At the moment it's palliative once you have the disease, but the human being is still in there. I'm a great optimist with the human brain. I'm a great enemy of the curse of genetic fatalism, which I think is scientifically wrong, but it's all so hugely damaging. Of course there are genetic influences on our behaviour and some of them are quite strong. But there's always plasticity and there's always capacity for change, and we need to harness that capacity. And then, it's such a pressing, pressing challenge for the whole world. Possibly almost as great as climate change - the trebling of the rates of dementia we're going to see. It's a big challenge to face up to, and that's very invigorating to have such a challenge. Finally, immediately it's just working with these fantastic colleagues like my colleague Brian Lawlor, who is just a hero of dementia in Ireland, a fantastic guy, and other colleagues here and these amazing fellows from across the world.