THE TRANSPLANT

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Part of

WRITING THE FUTURE

Writing the Future, the world's largest health short story prize, is brought to you by Kaleidoscope Health & Care.

Inspired by science fiction, entries considered how health and healthcare in the UK will look in the year 2100.

The prize was won by Elizabeth Ingram-Wallace with her story 'Opsnizing Dad', and was published along with the five other shortlisted stories in October 2017.

At a time of reflecting on where healthcare has been, a further set of longlisted stories was published in the summer of 2018 to coincide with the NHS's 70th birthday.

All of the published stories are available on the Kaleidoscope website, along with the option to buy a limited edition hard copy of the six shortlisted stories.

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The future is… full of wonders, yet predictable – just follow the thread

e-Journal entry 001

1 February 2100

Dear Gerard,

It feels surreal addressing this journal to myself, but I guess there's no more appropriate nomenclature given I'm writing this to my replacement brain.

Stranger still is that I've actually been asked to handwrite this!

Apparently, memories that are handwritten leave stronger footprints on the brain: my great-grandmother's science teacher was right after all!

So, where should I start?

It would have to be five years ago, when I realised something was wrong with my prescribed bio-smoothie. It didn't taste right.

'What's a bio-smoothie?' you might ask.

Well – it's technically a medicine. It's like a personalised yoghurt drink, made from modified bacteria from my gut. You're probably thinking: that sounds utterly disgusting! It's not great, but I've tasted worse!

I'm old-school and relatively famous (hence a good client for my health insurer, BiomeUK), so I'm fortunate enough to be able to choose

how I'd like my medicine. I have a bio-smoothie instead of a subdermal implant.

I don't think I'd ever be able to stomach an implant, it seems too invasive.

Although, ironically, I'm having a brain transplant next week: what could be more invasive than that?!

I've been asked to make this diary as comprehensive as possible – see below for a news clip on the different types of medicine (organic, biomic and genetic/genomic) which could be of interest.

News clip 001

After the revolutionary changes brought about by organic 3D printing of organs, bones and limbs, so-called 'organic medicine' has undergone no meaningful scientific development in the past 40 years. Pharmaceutical companies rapidly moved all their R&D efforts to the more profitable areas of biomics (gut bacteria) and genomics (genetic medicine), which focus entirely on the avoidance of disease.

As a result, all chemically-based ('inert') medicines are now generic, widely available and practically free under the NHS. Compared to biomic or genomic medicines, inerts have no active agents to prevent disease, and as such are considered less effective.

This is how the British three-tiered health system was born. As most organs could be easily replaced, it was too costly for the NHS to provide preventive care with biomic or genetic treatments. Private providers such as BiomeUK and Identia, however, have provided these services to the most affluent parts of society since 2080.

Interesting, right? More soon ,

Gerard.

e-Journal entry 002

2 February 2100

Dear Gerard,

As prime minister, I couldn't leave out politics. I thought you'd like to understand a bit more about what brought the current three tiers into the health insurance system in the UK. So, here's another news clip.

News clip 002

Read more – The last 80 years of the NHS

The tax-funded NHS is the 'organic' care provider of last resort, covering roughly 99% of the population. Under the NHS, as most diseases are unavoidable, all citizens are guaranteed an additional full set of

organs and bones (excluding brains), which allows a minimum lifespan of 90 years. Most deaths these days are associated with mental health, genetic or neurodegenerative conditions, with most people expected to live until around the age of 100.

Over 80 years ago, the publication of the Grenfell tragedy enquiry report, in 2020, signalled a pivotal change in public attitudes towards the poor. As pointed out by the enquiry, and echoing several academics at the time, there was no moral justification for the event.

Weeks of riots and countrywide demonstrations against a decade of austerity followed the publication of the enquiry report. This meant an abrupt end to the government's neglect towards those most in need, and a rethink in its approach to tackling inequality.

In the five years following 2020, the budget for the NHS, public health, social care and the wider publicly-funded safety net nearly doubled, with significant and rapid changes in overall health indicators, and increased lifespans. Clinical research, particularly in organic 3D printing and cloning, also grew as there were fewer limitations for clinical research from EU regulation."

I'm so glad I'm not treated by the NHS. Being the 'system of last resort', they would have

missed these precursory signs and given me those (quite useless) inerts as 'medicine'. We all know by now that treating disease is less effective than preventing it. Those inerts are about as much help as a placebo these days.

Gerard.

e-Journal entry 003

4 February 2100

Dear Gerard,

After the news interlude I thought we ought to go back to where we left off – the weird-tasting bio-smoothie.

So, as I'm old-school (remember: yes – smoothie, no – not ever, subdermal implant), I asked for a holo-appointment with a human to understand the reason behind the change. I got put through to a 'psychobiotic' consultant, who couldn't have been blunter: at 95 years of age, my gut biome was showing precursory signs of early-onset dementia. It still amazes me what they can gather, these days, from weekly breath samples!

The bio-smoothie mix had been modified to include memory-enhancing biomes to slow down the onset of the disease – hence the change in flavour. As expected, in the five-

minute appointment the consultant still managed to convey the usual legalities: I could choose to revert to the previous mixture, or not drink the smoothie at all, and my premium could be revised (upwards – that was left unsaid) as a result.

Such a bummer, I was looking forward to a nice retirement in 30 years' time. But I knew sooner or later my crazy sixties would catch up with me – not that they hadn't caught up with me already in other, even career-limiting ways; there's no escaping from Big Brother since we dropped physical money.

Despite this sudden reduction in my expected lifespan (another useful factoid from the psychobiotic consultant) I am now expected to live up to 122.5, not 145. That's still a short lifespan compared to those born today – for people using genomic medicine throughout their life some insurers guarantee at least 200 years of life (and if you've got the money to have genetic modification before birth, you could even live for 500 years!).

Looking forward to you re-reading this,

Gerard.

Birthing Report

6 February 2100

It's a momentous occasion – Sir Robert II is meeting his son for the first time after leaving the birthing pod yesterday. His father (Sir Robert I) had warned him how he would feel, but Robert II still cannot believe his eyes. The resemblance is uncanny: Robert III looks just like him when he was thirty – despite being born just a week before.

The cloning consultants managed to include some sentimental family traits from his own grandmother (the nose), and his great grandfather (the bony cheeks), but other than that, Robert III is identical to him. The voice is still slightly coarse due to lack of use, but the consultants assured him this would soon be gone.

No one could have anticipated that Brexit would turn out to be such a good deal for Robert's family business, Identia – the first ever cloning company in the UK. Freed from the European Convention on Human Rights and Biomedicine, and EU Clinical Trials regulation in 2020, the UK had been able to make full use of the 100,000 genomes project and became an international centre of genetic medicine and engineering. Identia had pioneered human cloning in 2050, but this part of the business didn't really take off despite plummeting fertility rates. The turning point

was achieved in 2078, when Sir Robert I (his father) made the bold decision to have a single, cloned child to prove to the world that the technology was safe; that's how Robert II was 'born'.

The law does not allow for fully-grown clones, so Sir Robert II had had to endure growing up. Those were the five longest years of his life. His days were spent undergoing hours of subliminal education and training (100 times faster than normal education but 1000 times more tedious) to achieve maturity – now achieved at 40 years of age. He shivered, remembering the nights spent in the bio-development pod - receiving bone, muscle and neural stimulation during his sleep. He wouldn't wish that on his worst enemy. Fortunately for Robert III, technological advances had reduced the process to a week.

His father had indeed warned him of the feelings provoked by seeing a cloned son: he felt proud and shocked, almost scared in his presence. It was difficult to accept, as his father had suggested, that love was absent for now, though would maybe develop later. This, of course, was not advertised in Identia's marketing materials.

Robert III's existence (as much as his own) was a business decision, after all – he would take over the management of the business now that a change in the political landscape meant Robert II would need to focus on becoming prime minister.

e-Journal entry 004

6 February 2100

Dear Gerard,

This journaling thing truly is an interesting exercise.

I'm here because the bio-smoothie didn't quite work as predicted. My bio-markers showed the disease was quite aggressive, and the bio-smoothie would not be able to delay its onset any more than five years. It was suggested I move up a tier and seek genetic treatment. BiomeUK had a special deal with Modicum and Identia and asked for authorisation to share my DNA with them.

I still remember my holo-appointment with the creepy Roberts clones from Identia. Robert I wrongly thought it would help the case if he was there too (as if I didn't see Robert II enough already at party meetings and in parliament – the clone irritates me no end), so he joined the meeting mid-way. I left thinking I would never do any type of business with them, let alone allow them to clone me. Told you, I'm too old-school, you know.

On the other hand, Dr Wilson from Modicum knew how to get me hooked. She was incredibly charming and engaging (unusual for a surgeon) and gave me the super VIP treatment with a face-to-face meeting. We

discussed the options: it was a bit too late for gene-editing (my APOE E4 allele gene, now widely removed from embryos, had already done enough damage). But perhaps a new brain would work wonders. The procedure had been quietly introduced the year before with encouraging results in hundreds of patients. I was sold on the idea of an all-human, old-school clinical team - with all-female nursing care 24/7. The risks were relatively high but still manageable – so I accepted.

That's how this process began. Lots of brain mapping, tissue sampling, memory tests and for the past week, the joys of writing this journal. You won't have any recollection of this but there were also a lot of decision-making tests - which I can't tell you about now as they will be testing your reactions following the transplant. The procedure will take place tomorrow. Wish us luck.

What would motivate a 95-year-old man to undertake a brain transplant? A less than healthy attachment to power, is the answer. I guess that's one of the drawbacks of my job.

e-Journal entry 005

17 February 2100

Dear Gerard,

I didn't think I'd continue writing this journal after the transplant but now it seems a great way to connect with myself.

After ten days in an induced coma with constant neuro-stimulation to rewire my brain and frequent amyloid PET scans (according to my lovely nurse) – I'm finally awake.

Although I do feel well, I'll be in observation for at least another week, with long sessions of Virtual Reality testing to see if I move, talk and react as normal. Every detail will be recorded. I've been told the memories were not implanted but similar tests were done prior to the experiment. These are backed by very powerful behavioural models (I also found mention of this in previous journal entries). The AI was apparently able to predict even the most minuscule conscious and unconscious reactions – all based on my digital footprint: home Echo recordings, purchasing patterns, public appearances, navigation history, GPS monitoring, and even my wife Margherite's own estimates of my decisions and the reasoning behind them. All should be exactly the same as before in order for the treatment to be considered a success.

There is some change after this whole experience, however.

- *Given the requirements of the procedure, I had to have a subdermal implant inserted. I am still wondering whether I miss the bio-smoothies and the breath samples enough to have the implant removed – I guess I'm no longer so scared of invasive procedures after the transplant.*
- *Even if my body is still the same (a healthy 95-year-old), in a way I feel like I'm twenty again. I don't know how to explain, I guess it's the euphoria of having made it through something like this.*

P. S. Robert I and family came to visit. Good to see them. I'm so glad they've got my back at the party and in Parliament while I recover.

Home Echo recording

15 December 2100

Margherite: Gerard, dear, you need to go public with this.

Gerard: (Sighs) I don't know, I don't think I can, I'm scared….You heard it - the changes will be reversible. I should eventually grow out of this.

Margherite: Excuse the pun, Gerard, but do you mean grow up of this? You have a duty to your people and the party, Gerard. I don't want to repeat this, but the transplant clearly didn't go as intended. I'm sure they messed with your memories – it's all falling apart. You're literally behaving like a child – I can't cope with these tantrums and fits of rage. You might grow up again but who knows when, or how. You can't just quietly step down and pretend nothing's happened, honey. You need to speak up!

News report

6 June 2110

A month after Gerard Deneuve's passing, his wife Margherite made accusations of clinical negligence surrounding the early demise of her husband.

In an acrimonious statement, Mrs Deneuve condemns the tiered system, and in particular Modicum, the genomic health provider, which she has sued for clinical negligence.

Clarifying the speculation surrounding Deneuve's early passing, his wife disclosed that he had not died from dementia but had instead been euthanised.

After ten years in a high-security mental health facility, his mental health, welfare and personal dignity had deteriorated beyond treatment. This deterioration

had apparently been brought about by a botched brain transplant to treat early onset dementia, offered by Modicum. While the procedure took place in February 2100 for which he was discharged, Deneuve took sick leave in November, following accounts of inappropriate behaviour in public office.

*This signalled the end of his political career and time as prime minister. He was succeeded in late December 2100 by Sir Robert Thomson II, clone of Sir Robert Thomson I, following an unexpected volte-face in Deneuve's political allegiance within the party which triggered all kinds of conspiracy theories (*see the report 'how the clones are taking over'*). Deneuve was secluded shortly after his resignation, under the guise of dementia treatment.*

News report

20 November 2115

On the sixth day of the Deneuve vs Modicum lawsuit, the court heard how Deneuve had shared his DNA sequence with Modicum and Identia in the hope of obtaining additional genetic treatment, or potentially cloning, for early-onset dementia. As biomic and other genomic treatment was ineffective, Deneuve agreed to have a brain transplant.

In the few months following the procedure, and back in the public spotlight, Deneuve had shown increasing recurrence of degrading emotional intelligence. Despite his brain and neural connections correctly reflecting that of a 95-year-old, his reactions became more and more driven by emotion, as experienced by younger people. As his emotional age deteriorated, Deneuve was forced to take a leave of absence for illness in November and showed increasingly violent behaviour at home.

The court also heard the Echo patient reports from Dr Wilson following the transplant. The medical team acknowledged having 'lost control of the patient', as Deneuve was deeply entrenched in rapidly changing cycles of depression and aggression. The medical team refused to acknowledge that the change in behaviour was in any way connected with the transplant - given, physiologically, the brain was working normally, with apparently correct memory transfer. This particular point on memory transfer was challenged by Ms Deneuve, but it could not be proven.

After a protracted legal battle, the Deneuve vs Modicum lawsuit has come to an end, with what seems like a resounding victory for Deneuve.

In a precedent-setting case, Modicum's CEO, Head of Research and all staff involved in the transplant were convicted of 'involuntary genetic

modification'. While charges for medical negligence were dropped, this new legal term encompasses the 'death' of the individual as originally known (pre-transplant) due to irreversible (and adverse) genetic modification. The settlement amount was undisclosed and will partly cover the costs for Mr Deneuve's care as a result of his mental illness.

About the author

Daniela Valdés was decidedly not a literary writer… until now. With a background in Global Healthcare Delivery (Harvard) and Economics (UCL), her working life has been spent writing reports and lately, WHO-awarded academic articles. Following a stint in NHS England, this summer Daniela will join Nexus Health Group as their Chief Officer.

Daniela lives in London with her partner. 'The Transplant', her first (hopefully not the last) publication, seeks to project the present into the future, reflecting on the myriad conditions that take us from one to the other. Her writing reflects her secret interest in Sci-Fi, fantasy and dystopias.

Inspiration

I wanted to tell a patient story, because patients are what matters most to those of us working in healthcare. I also wanted to convey how the patient journey fits within the healthcare system, a system shaped through decades of social, technological and political forces.