

## PERSPECTIVES

# A future of digital leadership that is behavioural by design

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## Introduction

Starting out as an undergraduate in medicine, I had little expectation that the next 15 years would lead me not only through clinical medicine but through policy and health technology, and to my current position as chief executive officer (CEO) of a company applying behavioural science to healthcare. In retrospect, this path is very firmly rooted in the inclusion of an MA in Psychology within my medical undergraduate degree. This experience of experimental psychology was the ignition of an enduring fascination with cognition, decision making and behavioural science, which is the common thread through the various phases of my career.

## What is behavioural science

Behavioural science is a branch of psychology that recognises the difference between what we *want* to do and what we *actually* do.<sup>1,2</sup> In practice, this often involves the blending of economics and psychology (which is why Daniel Kahneman, a psychologist, won the Nobel prize for economics in 2002).

Classical economic models often start with the assumption that human beings operate to maximise self-interest; that, as humans, we make rational decisions in line with our values, beliefs and long-term goals.

Psychologists have helped to show that human beings have, crudely, two different ways of taking decisions: an 'automatic' system that enables us to rapidly and intuitively respond to stimuli, and a reflective, deliberative system.<sup>3</sup>

As we increasingly understand, through behavioural science research, that our decisions are largely made automatically (and often therefore irrationally), this reshapes the optimal model for behavioural change, from changing the beliefs or values of individuals to changing the structure of the decision-making process or environment (for example, in changing a default setting).

Although the application of behavioural science can seem like common sense, it's often not accommodated into how we design services to engage patients. Examples of the unexpected power of a behavioural science approach are increasingly prevalent in non-health industries, from the way that we are encouraged to buy certain products at the supermarket to being persuaded to watch another episode on Netflix.<sup>4,5,6</sup>

## Neuropsychology

An academic interest in neuropsychology became a consistent focus alongside frontline hospital medicine. I was lucky enough to be offered opportunities to pursue this by working with cutting-edge research teams through an academic clinical NHS training post. As a clinical academic, I investigated the neurological correlations between unconscious states through a visiting researcher post at Harvard–Massachusetts Institute of Technology Health Sciences Department in Boston and spent time analysing the use of functional magnetic resonance imaging to establish the role of intelligence in mediating the neural networks underlying cognitive reserve at Columbia University in New York.

Meanwhile, many aspects of clinical medicine began to highlight to me the potential for behavioural science to be applied to the way that we deliver healthcare. Services are very clearly oriented around clinicians rather than patients. Patient understanding of how to self-manage and access healthcare appropriately are often limited, and time and resource constraints restrict the ability of clinicians to deliver personalised care.

Behavioural science, in conjunction with technology, offers clear approaches to addressing these issues, and so, alongside my medical practice, I began to more seriously explore developing technologies and their applications, including teaching myself to code using R and applying this new skill to analyse health datasets.<sup>7</sup>

Tied to this growing interest in how new models of care might be structured was a fascination with how academic research is practically translated into frontline evidence-based medicine, and I returned to Cambridge as part of my academic clinical training to undertake an MPhil in Translational Medicine alongside clinical practice, spending time also refining my clinical knowledge by teaching undergraduates as a university supervisor and becoming an associate fellow of Clare Hall college, Cambridge, in the process.

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## A pathway into policy

As I progressed in clinical training, I found I wanted to understand more about why things are the way that they are on the ground; why funding is channelled in the way that it is, and how and why certain decisions are made at governmental and local levels. I also wanted to explore how behavioural science was starting to be used more widely in policy and technology, as well as engage more deeply in health technology as a means to solving some of the frustrations of and barriers to delivering modern healthcare services.

Over the next few years, I took on strategic and commercial roles in start-ups related to behavioural science and patient care, supplementing my understanding of the health technology ecosystem through involvement in NHS England's Clinical Entrepreneur Programme and gaining experience of national health policy as a national medical director's clinical fellow, keeping a focus on behavioural science and technology. I used this time to build up a global network of like-minded contacts through stints at Harvard and INSEAD, both of which run programmes to bring together leaders in healthcare and create connections between those working in services with differing approaches and funding models.

These experiences led me to a role in the Ventures team at the Cabinet Office's Behavioural Insights Team ('Nudge Unit'), which combines these approaches through translation of robust randomised controlled trial findings into influencing public policy and building behavioural science-powered technology.

Having seen how high-level decisions were made in policy, I then took steps to understand how equivalent decisions were made in the private sector, why and how certain health technologies were given the ability to grow through investment and others weren't, and therefore undertook a short stint working for a venture capital firm with a health focus, managed by former physicians.

## Embracing digital leadership

Once I had gained experience across the spectrum of the health technology ecosystem, I felt in a better position to build technologies that would have a wider impact on healthcare and address some of the issues that I had encountered as a clinician. Vinehealth was started to support the self-management of those going through cancer first and foremost, but also to facilitate patient-clinician communication and remote management. The platform applies an evidence-based behavioural science approach to help patients going through cancer to track, understand and optimise their medication-taking, symptoms and lifestyle, allowing people to feel more in control of their treatment and its corresponding side effects.<sup>8,9</sup>

Through empowering patients, the platform can collect large-scale data on how particular drugs are affecting patients' quality of life, supporting the optimisation of clinical services and research to develop new and better treatments.

Currently, 96% of cancer patients never get access to clinical trials.<sup>10</sup> This has a knock on effect on the size and quality of data able to be used for the creation of the next generation of life-saving drugs. Highly orchestrated clinical trials collect limited data and there is a sector-wide shift towards being able to collect and learn from real-time patient-generated data that reflects the real-world experience that cancer patients live through day-to-day. It is crucial that both patients and clinicians are able to weigh up not just the survival impact of any therapeutic drug, but its impact on quality of life. The Vinehealth platform collects the data to enable this.

Founding a business is undoubtedly daunting, particularly as a medic entering a commercial environment that often tends

not to follow the kind of evidence-based practice to which we're accustomed. Nowhere is this more true than in investment, and as a female founder looking to fundraise, you are frequently reminded of the stacked odds: namely that only 12% of venture capital funding goes to female founders, 2.7% to female CEOs and 0.2% to female founders of colour.<sup>11</sup> Although it can be easy to be put off by these facts, the last couple of years have seen increasing efforts to ensure investment is fair and merit-based, and these numbers are starting to shift.

Ultimately, my current position could not have been made possible without the incredible breadth of experiences now available to clinicians within an increasingly modern healthcare service. Connecting the dots of how disparate parts of the system function and carving a niche is increasingly possible for clinicians wanting to fulfil broadening interests and effect change.

## Final thoughts

Behavioural science is now consciously applied to the design of almost every service and product we use in our lives, and healthcare should be no exception. Patients are human and, as such, their choices will be subject to the decision-making environment around them; the information given and its timeliness, the ease of each choice and its attractiveness. As our population ages and chronic diseases increase in prevalence, we must accommodate human nature and behaviours in how we deliver healthcare services to do our best for the patients who rely upon them. ■

## References

- Williams RJ, Tyler RW. What is behavioral science? *Science* 1956; 124:276–7.
- Adhikari D. Exploring the differences between social and behavioral science. *Behavioral Dev Bull* 2016;21:128–35.
- Sahlin NE, Wallin A, Persson J. Decision science: from Ramsey to dual process theories. *Synthese* 2010;172:129–43.
- Sadasivam RS, Cutrona SL, Kinney RL *et al*. Collective-intelligence recommender systems: advancing computer tailoring for health behavior change into the 21st century. *J Med Internet Res* 2016;18:e42.
- Chartrand TL, Fitzsimons GJ. Editorial note: Nonconscious consumer psychology. *J Consum Psychol* 2011;21:1–3.
- Campbell-Arvai V, Arvai J, Kalof L. Motivating Sustainable food choices: the role of nudges, value orientation, and information provision. *Environ Behav* 2014;46:453–75.
- Glanz K, Bishop DB. The role of behavioral science theory in development and implementation of public health interventions. *Annu Rev Public Health* 2010;31:399–418.
- Redd WH, Montgomery GH, DuHamel KN. Behavioral intervention for cancer treatment side effects. *J Natl Cancer Inst* 2001;93:810–23.
- Roberts AL, Fisher A, Smith L, Heinrich M, Potts HWW. Digital health behaviour change interventions targeting physical activity and diet in cancer survivors: a systematic review and meta-analysis. *J Cancer Surviv* 2017;11:704–19.
- Cancer Research Institute. *Cancer Clinical Trials*. Cancer Research Institute. [www.cancerresearch.org/patients/clinical-trials](http://www.cancerresearch.org/patients/clinical-trials)
- British Business Bank. *UK VC & female founders*. BBB, 2019. [www.british-business-bank.co.uk/wp-content/uploads/2019/01/UK\\_VC\\_and\\_Female\\_Founders\\_Report\\_British\\_Business\\_Bank.pdf](http://www.british-business-bank.co.uk/wp-content/uploads/2019/01/UK_VC_and_Female_Founders_Report_British_Business_Bank.pdf)

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