

From the Editor's desk

By Kamaldeep Bhui

Black holes, knowledge and psychiatric sciences

Stephen Hawking, the world famous physicist working from Cambridge University, apart from showing remarkable and inspiring resilience against personal adversity, has made an enormous contribution to science that engages the public from all nations in hope and common humanity. His research offers a better understanding of our collective cosmic histories, against which we must gauge our more immediate and personal biographies and destinies. This emphasis on the collective and the personal, and the humility with which people must appraise their lives, is a constant human endeavour. Some might argue it is the fundamental human dilemma: how can one make sense of immediate and seemingly powerful life events, and positive and negative emotions, when the backdrop is the history of the universe and time, at such a magnificent scale as to be almost unintelligible?

Black holes, the subject of Hawking's pioneering work, are usually characterised as attracting and absorbing all matter, and condensing it through powerful gravitational forces so that even light cannot escape. There is some debate about what happens to all that knowledge absorbed by a black hole. Hawking famously announced in 2004 that we need not be trapped in black holes, and that it was possible for information to escape, but as a 2D representation of 3D knowledge, perceptible at the event horizon, so challenging the notion of a total loss of matter and knowledge.¹ Yet this 2D representation does not mean that the information holds the same utility as before it entered; it may be in a lesser form or an undecipherable remnant of what entered. The comparison with new discovery and then understanding what happens to knowledge that enters the black hole of health systems is of great priority at a time when the world needs low-cost and high-impact interventions suited to multiple environmental, health and legal contexts (for example, see this month's edition of *BJPsych International*). How do we offer personalised care, while grappling with seemingly cosmic organisational, political and fiscal forces?

Ensuring that evidence does not suffer the plight of entering a black hole must be a priority for clinicians, policy makers, researchers and commissioners. Mood disorders will become the greatest source of disability in our collective global future, yet we struggle to better understand the causes and then to develop targeted interventions. The February edition of *BJPsych* demonstrates what we know and broadcasts where the scientific gaze should be directed. Vast amounts of new knowledge and scientific evidence anticipate effective rewiring of health practice and systems to more significantly impact on population health. This knowledge seems to disappear into the cyber world and black holes of health systems, only rarely affecting the design and delivery of health systems. Indulging in the metaphor of the black hole hypothesis of Hawking, we might see a lesser version of evidence (1D, 2D rather than 3D) appear on the event horizon.

The knowledge at the event horizon of health systems is important as it influences public perceptions and knowledge and awareness of what to expect, what services are available, and what is their role in recovery and promoting resilience. It also drives scientists' strategy driven by policy and political priority. These considerations frequently dominate and diminish more in-depth negotiations around the evidence on specific interventions

at both the personal and global levels. *BJPsych* aims to provide the latest, best and publically accessible accounts of critical and impactful psychiatric research. The editorial board and the Royal College of Psychiatrists see the in-depth, authentic and more nuanced analysis of evidence as an absolute essential. Only detailed, albeit plain English, and elegant analysis can foster disciplined thinking and scientific advance. Our mission is in part to ensure that fragmented 1D and 2D forms of knowledge are not privileged. In this endeavour, we will publish more systematic reviews as the highest form of evidence to drive policy, practice, commissioning priorities, and research strategy. To do this we need highly skilled and well-trained clinical academics in mental health landscapes.

At this time of great need, recruitment into psychiatry, health-care, and social care in general seems to be struggling due to the collective impact of recession, service reorganisations, and modernisation. In such a universe, technology should ensure more efficient and cost-effective healthcare. Yet, technology cannot provide the personalised arts of communication, building relationships, understanding and negotiating divergent narratives, nor of understanding the existential dilemmas faced by patients, to whom failure of health systems are experienced as an immediate cosmic survival threat. Patients wish to see experienced, competent, safe doctors and mental health professionals, who need to be up to date with their knowledge of the latest evidence. Inspiring the next generation of scientists and practitioners is not easy at this time; indeed, the recent UK negotiations around doctor's contracts are troubling and not always well informed by the evidence.² The overarching ambition of retaining the best and recruiting future experts, in science and clinical practice, should not be overlooked.³ In spite of advances in technology, a revolution of informatics, and more evidence than we have ever had, we still need human judgement to weigh up and apportion nuanced values or weights to the evidence on acceptability, willingness to use even the most powerful interventions, adaptations to diverse cultural and legal contexts, and to ensure evidence is understood in all its aspects, as 3D evidence. We must avoid a lesser version being promulgated in the name of simplicity and accessibility which seeks to transform effective interventions to large scale ideas or campaigns devoid of the magical – effective – ingredient.

Expertise is highlighted in Parker's lament and celebration of the demise of the Prof (this issue, pp.106–107) and Cohen's (pp.104–105) appeal for professionals to embrace risk assessment in child protection as a personal process of applied judgement. We need new forms of knowledge expertise but we should not shun prodigies, as mediocrity in mental health research and practice will not do. Several studies published this month reveal what works and for whom and how. A review of ketamine in treatment-resistant depression illustrates the need for a careful balance between wanting results now in a simple form, versus well-seasoned experts, seeking the best outcomes for patients (see editorial by Mahli *et al* (pp.101–103) and systematic review by Schoevers *et al* (pp.108–113)). The therapeutic effect of selective serotonin reuptake inhibitors, it seems, is not mediated by the experience of adverse effects (Barth *et al*, pp.114–119). Doerig *et al* (pp.175–181) show that heightened right amygdala activity diminishes the benefits of psychotherapy for depression, and these effects are mediated by emotional processing, rather than shifts in cognitive bias. Lester *et al*'s study (pp.182–188), contrary to expectation, did not replicate the association between 5HTTLPR genotype and outcome of cognitive-behavioural therapy, with implications for future research and the potential for using genotypic markers to stratify interventions. Hung *et al*'s study (pp.120–127) reminds us of the importance of intellectual disabilities, and how a low IQ is predictive of future depressive

experiences and suicidal ideation, with intriguing putative mechanisms that include relatively poor socio-emotional development, impaired problem-solving, stigma, and behavioural problems, and there are also greater risks of trauma and neurological disorders. Several studies identify biological and functional correlates of mental disorders in the elusive search for biomarkers of severity and potential recovery (see Li *et al* (pp. 128–137), Wium-Andersen *et al* (pp. 138–145), Bond *et al* (pp. 146–152), Vicens *et al* (pp. 153–159), Chen *et al* (pp. 160–167), Odlaug *et al* (pp. 168–174), Jakbosen *et al* (pp. 195–196)). Patients and the public are at the heart of successful research⁴ but there seems to be room for improvement in the design and construction of patient information sheets (Ennis & Wykes, pp. 189–194). Careful collaborations between patients, public and scientists need to evolve new models of academic, clinical academic and clinical expertise, and by implication contracts. The application of this expertise should be an ongoing activity, closely linked with quality improvements in patient care and health systems, with no quarter given to black holes or degraded forms of knowledge and evidence. New forms of professionalism must be robust to cultural transitions, global movements of doctors and scientists, and national reviews of the contract between health professionals and society.^{5–7} We should not overlook systems science and Big Data for solutions,^{8,9} although

integrating effectively with political and fiscal cosmic influences remains a challenge.

- 1 Aron J. Stephen Hawking says he has a way to escape from a black hole. *New Scientist* 25 Aug 2015 (<https://http://www.newscientist.com/article/dn28090-stephen-hawking-says-he-has-a-way-to-escape-from-a-black-hole/>).
- 2 Keynejad R, Holt C, Rao T. Replication and contradiction of highly cited research papers: a lesson for the Secretary of State for Health? *Psychiatrist* 2015; **39**: 315.
- 3 Best D, Lopes J, Pugh C. Postdoctoral progression is needed for doctors taking up clinical academic careers. *BMJ* 2015; **351**: h6927.
- 4 Ennis L, Wykes T. Impact of patient involvement in mental health research: longitudinal study. *Br J Psychiatry* 2013; **203**: 381–6.
- 5 McKimm J, Wilkinson T. "Doctors on the move": Exploring professionalism in the light of cultural transitions. *Medical Teacher* 2015; **37**: 837–43.
- 6 Bhugra D, Easter A, Mallaris Y, Gupta S. Clinical decision making in psychiatry by psychiatrists. *Acta Psychiatr Scand* 2011; **124**: 403–11.
- 7 Bernstein CA, Bhugra D. Next generation of psychiatrists: What is needed in training? *Asian J Psychiatry* 2011; **4**: 88–91.
- 8 Li Y, Kong N, Lawley M, Weiss L, Pagan JA. Advancing the use of evidence-based decision-making in local health departments with systems science methodologies. *Am J Public Health* 2015; **105** (suppl 2): S217–22.
- 9 Tillmann T, Gibson AR, Scott G, Harrison O, Dominiczak A, Hanlon P. Systems Medicine 2.0: potential benefits of combining electronic health care records with systems science models. *J Med Internet Res* 2015; **17**: e64.