

## From the Editor's desk

By Kamaldeep Bhui

**Mental and life sciences:  
a call for parity and priority**

The British government's commitment to life sciences imagines a far more fruitful partnership between industry, the NHS and academic partners.<sup>1</sup> The ambition is to reduce the translational gap between discovery of biotechnologies, engineering and computational sciences, and application in clinical settings, taking into consideration appropriate patent and intellectual property implications. For example, regenerative technologies and genomics are prophesied to revolutionise healthcare and improve quality of life. This necessarily requires investment from industry, investment that will not flow unless NHS and academic institutions, and respective business processes, are receptive and fit for partnership. These innovations hold great potential for people with psychiatric illnesses. This needs vision and precision.

The Life Sciences Strategy aims also to stimulate the pharmaceutical industry to design and deliver new pharmacological agents, driven by better knowledge about the mechanisms of disease processes. Despite a growing awareness of the disability and premature mortality associated with psychiatric illnesses, the pharmaceutical industry is no longer responding to the desperate need for drug discovery for neurological and psychiatric disorders.<sup>2</sup> The relationship between the pharmaceutical industry and doctors has been questioned and concern expressed about the power of marketing and persuasive gratuities engendering brand loyalty that supersedes scientific evidence or clinical guidelines.<sup>3,4</sup> The patterns of prescribing and reliance of pharmacological interventions varies by locales and there are calls for a 'detox' to reduce the reliance of doctors on pharmacological interventions.<sup>5</sup> The Life Sciences Strategy requires progressive and transparent partnerships in the service of public mental health and patient care. Research is not enough. New pharmacotherapies and technologies do not enter routine NHS care without rigorous scrutiny of the evidence for cost-effectiveness by the National Institute for Health and Care Excellence (NICE). In this context, the review by Hutton *et al* (pp. 360–370) offers important findings that mandate the use of all data, published and unpublished, in making decisions about cost-effectiveness. The science of trial design is evolving, and alongside Hutton *et al*'s call for more transparency, Taylor & Perera (pp. 357–359) suggest that the design and standards for psychological therapies and pharmacological agents need reappraisal, basing this on a detailed critique of the NICE guidelines for the treatment of schizophrenia.

There is little mention of mental sciences in the Life Sciences Strategy. Dementia is mentioned with the ambition of new drug discovery and better defining its aetiology so that novel therapeutic bullets might be shot at the newly discovered pathologies. Studies in this issue show how mental sciences contribute to the ambitions of the Life Sciences Strategy. Polymorphisms of 'brain derived neurotrophic factor Val66Met' appear to show strong correlations with reduced surface area in subregions of the prefrontal cortex in patients with major depression (MacGregor Legge *et al*, pp. 379–384). Allelic variations in 5-HTTLPR explain differing responsiveness to selective serotonin reuptake inhibitors (Ma *et al*, pp. 385–392). Autism spectrum disorders provide a further area of need. How are the findings that a single-nucleotide polymorphism (SNP) of the *DRD3* gene (rs167771) (see Staal

*et al*, pp. 431–432) associated with autism spectrum disorders to be exploited for therapeutic gain? Verhoeven *et al* (pp. 371–378) find that shortened telomere length, a marker of vulnerability to cellular ageing, is more common in those with anxiety disorders and that the effect may be reversible. All these findings need more investment to realise therapeutic potential. Mental sciences include research showing greater levels of direct impact on patient care and public health, but such activities are not valued in the Life Sciences Strategy. For example, studies of screening instruments for post-traumatic stress disorder and risk of violence, comparisons of diagnostic systems, and studies of collaborative care systems all offer findings that can make a difference to patient outcomes.

Why is there such little emphasis on mental sciences within the life sciences? The scope of 'life sciences' is not elaborated in the strategy. The wiki definition perhaps offers a clue ([http://en.wikipedia.org/wiki/List\\_of\\_life\\_sciences](http://en.wikipedia.org/wiki/List_of_life_sciences)): life science is a study of living organisms, centred on biological processes and bio-ethics, with specific types of living organism receiving specialised attention. Mind-neuroscience is a separate and very specialised branch. The emphasis on the biological is a flawed category if the organism under study is the human being.

The biological, social, ethical and environmental are widely recognised as important in public health and social medicine. In part, the progressive and humane socialisation of psychiatric practice shows our better understanding of how medical care should be provided for all illnesses. However, the progress made in psychiatric care may mislead scientists and the public to see mental science as restricted to an artificial category of social, legal and political science or social therapy, neglecting the need for the majority of patients requiring complex packages of care including brain stimulation, pharmacological, psychological, social and practical interventions. For example, housing, employment, financial strain, friendships, leisure and medical elements of care must be harmonised to optimise physical health. The social determinants of health are well established,<sup>6</sup> but the biological consequences of social and psychiatric illness appear to not be recognised in the Life Sciences Strategy. Much effort has already been made to rid medical sciences of the false mind–body split, pressing the point that biology and psychology are not distinct natural categories but convenient, man-made and flawed classifications which have engendered failure of patient care and healthcare organisation. And similarly, the biological and social categories must not be marshalled as natural entities around which to organise separate policies and practices. A strategy for life sciences based on or delivered through a restrictive biological lens will not serve the public well as it holds in mind only one part of the long, non-linear pathway to impact on public health and medical care.

Mental sciences offer numerous advantages as a fulcrum for life sciences activity. Mental sciences are interdisciplinary, include a broad range of treatments, from those located in the pharmacological, neurosurgical and biological realms right through to the use of psychological and communications technologies, and attention to the environment, culture and arts. Furthermore, psychiatry, is a complex blend of medicine, medico-legal practice, medical humanities, psychological and communication science, and pragmatic organisation of complex care packages located in community settings and in hospital settings, including the forensic and prison sectors. Scientific progress, scientific strategies, and scientific investment must not be restricted to an artificial category of biological disease and mechanisms, and then exclude mental sciences as if these were not biological. I welcome comment from readers on how mental and life sciences might be better integrated to deliver better public mental health.

- 1 Department for Business, Innovation and Skills (BIS). *Strategy for UK Life Sciences*. BIS, 2011 ([https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/32457/11-1429-strategy-for-uk-life-sciences.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32457/11-1429-strategy-for-uk-life-sciences.pdf)).
- 2 Rizzo SJ, Edgerton JR, Hughes ZA, Brandon NJ. Future viable models of psychiatry drug discovery in pharma. *J Biomol Screen* 2013; **18**: 509–21.
- 3 Anand S. 'Big pharma' and psychiatry: 'the devil is in the dyad'. *Aust NZ J Psychiatry* 2012; **46**: 1118–9.
- 4 Sharfstein SS. Big pharma and American psychiatry. *J Nerv Ment Dis* 2008; **196**: 265–6.
- 5 Oldani M. Deep pharma: psychiatry, anthropology, and pharmaceutical detox. *Culture Med Psychiatry* 2014; **38**: 255–78.
- 6 Garg A, Jack B, Zuckerman B. Addressing the social determinants of health within the patient-centered medical home: lessons from pediatrics. *JAMA* 2013; **309**: 2001–2.