

News from here and there

Nobel prize in physiology or medicine awarded for discovery of human brain's internal GPS system

The Nobel Prize in Physiology or Medicine for 2014 was awarded to three individuals for their discoveries of cells that constitute a positioning system in the brain. Dr John O'Keefe (University College, London, UK) received half the prize. The other half was shared between the wife-husband team of Drs May-Britt Moser (Centre for Neural Computation, Norway) and Edvard Moser (Kavil Institute for Systems Neuroscience, Norway).

Initial work in the 1960s by O'Keefe, first at Canada's McGill University and subsequently in University College of London, pinpointed the brain cells responsible for orientation. Stimulation of specific hippocampal cells caused experimental study animals to become oriented in different environments and store memory of these 'internal maps' which helped them to navigate. This was a novel finding as the hippocampus was previously known only for its function in developing and storing memories. However, it remained unclear how the cells actually worked together to do this. Nonetheless, this discovery was the cornerstone of what would eventually result in the Nobel-prize winning work.

May-Britt and Edvard Moser, who both previously worked as visiting scholars with O'Keefe, continued this work. They wanted to understand how these signalling cells were activated, particularly by signals external to the hippocampus. Their work resulted in the identification of the entorhinal cortex. In their experiments, they found that these 'grid cells' were able to code for patterns in hexagonal shapes, much like the pattern of beehives.

'Grid cells' have changed our understanding of orientation and coding patterns in multiple species and their interplay with memory. Major memory disorders, such as Alzheimer disease and dementia include spatial deficits in addition to memory impairment. Better understanding of the 'grid cell' and their ability to encode memory may have direct correlates to the pathophysiology, and possibly treatment, of these diseases.

PAMELA LIAO, *Toronto, Ontario, Canada*

Pork nasal packing research paper wins 2014 Ig Nobel prize in medicine

The Ig Nobel awards acknowledge novel and innovative discoveries in science that 'first make people laugh and then make them think'. The 2014 Ig Nobel award in medicine was given to a team from Michigan State University, comprising Drs Ian Humphreys, Sonal Saraiya, Walter Belenky and James Dworkin, for their creative treatment modality for brisk, pathological nasal bleeding: strips of cured pork.

The discovery came about when the team treated a 4-year-old girl with Glanzmann thrombasthenia. She presented with recurrent epistaxis that failed to respond to multiple surgical interventions and expensive nasal dressings. The little girl required intubation and blood transfusions. After 5 days of attempting to control her bleeding through traditional approaches, the team used strips of cured salt pork which promptly achieved haemostasis. They hypothesized that the salt component causes swelling that obstructs

the local vessels. Their paper was published in *Annals of Otolaryngology and Rhinology*.¹

While this work was done at the Michigan State University Children's Hospital of Michigan, it is of interest to Indian readers to note that Dr Saraiya, who attended the ceremony for the group, is a Mumbai-trained Otolaryngologist. She completed both her medical training and residency at the Topiwala National Medical College, University of Mumbai. She was completing her Paediatric Otolaryngology fellowship in Michigan at the time.

The other notable 2014 Ig Nobel awards include those on (i) Nutrition, awarded to Rubio *et al.* from Spain² for their study on lactic acid bacteria isolated from infant faeces as potential probiotic starter cultures for fermented sausages; (ii) Public Health, awarded to Flegr *et al.* (from Czech Republic) and to David Hanauer, Naren Ramakrishnan, Lisa Seyfried (from Japan, USA and India), for investigating whether it is mentally hazardous for a human being to own a cat;³⁻⁵ and (iii) Psychology, awarded to Jonason *et al.* for amassing evidence that people who habitually stay up late are, on average, more self-admiring, more manipulative, and more psychopathic than people who habitually arise early in the morning.⁶

The awards are hosted at Harvard University's Sanders Theatre, in a ceremony that is modelled after the actual Nobel Prize traditions—while Nobel laureates also attend the event, awardees are acknowledged by tossing paper planes from the audience, in addition to the typical applause.

A recording of the ceremonies can be viewed at <http://www.improbable.com/ig/2014/>

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Study published in the NMJI wins Research Paper of the Year award at the BMJ Awards India 2014

A paper published in the *Natl Med J India* has been awarded the Research Paper of the Year award by *BMJ India*.

BMJ has had an Indian base since 2008 with offices in Mumbai and Noida. The Indian edition of *BMJ* was launched in February 2013 with the first *BMJ Awards India* being held in Delhi's Aerocity on 20 September 2014. Ten categories of awards were presented which included Research Paper of the Year, Excellence

in Medical Education, Excellence in Preventive Health, Surgical and Medical Teams of the Year, Junior Doctor of the Year, Quality Improvement in Healthcare, Healthcare Advocacy, Primary Healthcare in Challenging Circumstances and Innovation in Healthcare Technology.

The Research Paper of the Year was awarded to Anurag Bhargava and his co-authors for their study 'Undernutrition and the incidence of tuberculosis in India: National and subnational estimates of the population-attributable fraction related to undernutrition', which was published as an original article in this *Journal (Natl Med J India 2014;27:128-33)*.

The study, conducted at the Himalayan Institute of Medical Sciences, Uttarakhand, India used data from national- and state-level reports of the National Family Health Survey-3, which was done in 2005-06, to assess the prevalence of undernutrition in India. It calculated the influence of undernutrition on tuberculosis (TB) among adolescent and adults in India. The paper showed that distribution of undernutrition was highest among the younger age groups, women, villagers, members of the scheduled tribes and people in the lower quintiles of the wealth index in India and was concentrated mainly in the central (Chhattisgarh), northern (Uttar Pradesh, Rajasthan) and eastern states. The lowest population-attributable fraction (PAF) of undernutrition was found in the northeastern states of Sikkim and Mizoram. The authors suggest that half the estimated 2.3 million new cases of TB that occur every year in India, with no decline in notification rates, may be due to undernutrition, which has persisted despite economic growth and is being fuelled by high inflation in costs of food

items. They recommend targeting endemic undernutrition among adolescents and adults in India concurrently with implementation of strategies for control of TB to reduce the incidence of TB in India.

This was the first time *BMJ* awards, which were started in 2008, were presented outside the UK as a dedicated ceremony for another region. Shortlisted nominations were selected by Dr Anita Jain (*BMJ*'s India editor), Prashant Jha (Head of Clinical Engagement, *BMJ* India), and T. Balajee, an independent healthcare expert. The winners were felicitated by Fiona Godlee, Editor-in-Chief of *BMJ*.

According to Dr Peush Sahni, Editor, *NMJI*, 'The paper by Anurag Bhargava and his team on the relationship of undernutrition and tuberculosis was an example of identifying the cause of a problem often encountered by physicians looking after patients with tuberculosis in India. The *NMJI* is constantly striving to publish research that provides answers to Indian problems.'

Dr Anita Jain, Editor, *BMJ India* said: 'At the *BMJ* India awards, we were keen to showcase research from India that is scientifically robust, is focused on health priorities of the country, and has the potential to inform health policy or practice to deliver on better health outcomes for the population at large. This paper by Bhargava and colleagues checked all the boxes. In 2015, we shall take the awards to a larger platform and will be rewarding excellence in healthcare and research in South Asia. The awards are planned to be held in October 2015 and applications will open soon.'

MAHARRA HUSSAIN, *Dubai, United Arab Emirates*

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