

# News from here and there

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## ***Plasmodium vivax* malaria poses new lethal threat to India**

Life-threatening cases of *Plasmodium vivax* (*P. vivax*) malaria, while uncommon, have been reported since the early 20th century. The *World Malaria Report 2015* states that more than 80% of the global burden of *P. vivax* is contributed by three countries, one of which is India. In 2013, there were 417 884 cases of *P. vivax*—half of the total malaria cases in India are triggered by *P. vivax*. WHO regional director Poonam Khetrapal Singh stated that our efforts so far had focused on the more deadly *P. falciparum* malaria. In May 2015, the World Health Assembly adopted the Malaria Global Technical Strategy 2016–30, which aims to reduce malaria deaths and disease by at least 90% and eliminate malaria in at least 35 countries by 2030. Reducing the burden of malaria is part of the Sustainable Development Goals 2030.

*P. vivax* malaria is a serious challenge to malaria elimination efforts within India due to multiple reasons—the parasite can survive in cooler climates, is less responsive to conventional methods of vector control, is more difficult to detect using conventional diagnostic tools, and treatment of liver stage parasites requires a 14-day course of primaquine, which can cause serious side-effects. Moreover, a significant proportion of cases of *P. vivax* are being reported from urban areas. Special measures such as good quality microscopy to detect all *P. vivax* infections (see below, Mohan A, Foldscope: An innovative microscope), operational research to estimate prevalence of glucose-6-phosphate dehydrogenase (G6PD) deficiency in the population, appropriate vector control measures and ensuring good compliance to 14-day radical treatment with primaquine in affected individuals will be undertaken by the National Vector Borne Disease Control Programme, Government of India to address this challenge. Intensive measures to reduce malaria transmission in urban areas will also help to lessen the burden of *P. vivax* in India.

PRITAM ROY, *New Delhi*

## **Foldscope: An innovative microscope**

A key diagnostic tool in the war against infectious diseases is the microscope. Be it tuberculosis or malaria, among others, microscopy plays a crucial role in establishing the aetiological diagnosis. However, the cost involved in purchasing good quality microscopes, their maintenance and safe-keeping, and lack of trained laboratory personnel who are required to operate them often constitute obstacles in their widespread use.

'Foldscope', an innovative idea, the brain child of Manu Prakash, an assistant professor of bioengineering at Stanford University, USA, who is also the proprietor of 'frugal science' seems to change the rules of the game of diagnostic microscopy. The foldscope is a functional fluorescence, bright-field, polarization and projection microscope built purely by folding paper. The parts align perfectly because of origami, which allows micron-scale precision of optical alignment. This unique device features no written language instructions for assembly, but is colour-coded and perforated, rendering it universally understandable. All the non-paper components are built into the paper, giving this piece of high-

precision engineering a deceptive resemblance of a toy. The entire device is small enough to fit in a pocket (70×20×2 mm<sup>3</sup>), is almost weightless (8.8 g) and requires no external power. Importantly, it is astoundingly sturdy. While the higher resolution version of the foldscope that can magnify over 2000× magnification with sub-micron resolution (800 nm) costs around US\$ 1, the lower resolution device costs around US\$ 0.50.

While the generic device is 'one-size fits all', specialized versions, such as a 'malaria-centric' foldscope, have also been designed. The foldscope is being field-tested and has the potential to revolutionize the field of diagnostic microscopy. The discerning reader can read more about it in the paper, Cybulski JS, Clements J, Prakash M. Foldscope: Origami-based paper microscope. *PLoS One* 2014;**9**: e98781 and go to the URL [www.ted.com/talks/manu\\_prakash\\_a\\_50-cent\\_microscope\\_that\\_folds\\_like\\_origami?language=en#t-535174](http://www.ted.com/talks/manu_prakash_a_50-cent_microscope_that_folds_like_origami?language=en#t-535174) to listen to the TED talk on the subject by Manu Prakash.

ALLADI MOHAN, *Tirupati, Andhra Pradesh*

## **Only 5%–7% of Indians use alternative medicine options such as AYUSH**

The Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) was formally established in 2014 with the intention of improving standards of education and research in colleges dealing with traditional Indian medicine, along with cultivation and nurturing of flora that constitute plants with medicinal properties. Originally conceptualized under the aegis of the Department of Indian Medicine and Homeopathy (ISM&H) in March 1995, a National Policy on Indian Systems of Medicines and Homeopathy was drafted in 2002 and is to be reassessed via a fresh draft in 2016.

A press note released on 30 June 2015 by the National Sample Survey Office (NSSO) from the Ministry of Statistics and Programme Implementation, Government of India shows that only 5%–7% of urban and rural based Indians use 'other' forms of medicine such as AYUSH. Over 90% of the population in both urban and rural areas prefers allopathy as a treatment modality.

Urban men were found to be more likely to use AYUSH treatments as compared to their rural counterparts whereas rural women were found to have used more 'alternative medicines' than urban women. Allopathy was the most prevalent form of treatment used for hospitalized patients as well, irrespective of gender and location. Private doctors were the most important single providers of treatment in both rural and urban areas. AYUSH utilization in a hospital setting was more in urban (0.8% for men and 1.2% for women) as compared to rural (0.4% for men and 0.3% for women) areas.

The data were collected between January and June 2014 by NSSO as part of the 'Key indicators of social consumption in India: Health' survey, during the 71st round of socioeconomic surveys. There were 4577 villages in rural areas and 3720 urban blocks spread over all states and Union Territories of India which were included in the sample set. For the survey, 36 480 households in rural India and 29 452 households in urban India were canvassed.

Asked to comment on the low number of Indians utilizing traditional Indian medicine modalities such as AYUSH, Dr Mahadevan Seetharaman, CEO and Managing Director, I-AIM Healthcare, a Bengaluru-based hospital where allopathy is practised along with Ayurveda, yoga, acupuncture and physiotherapy, said: 'Multispecialty AYUSH hospitals or facilities are few compared to allopathy set-ups, and for major health conditions the inclination is to go to an allopathy hospital or clinic. However, high utilization of AYUSH services and local health traditions has been seen in states such as Tamil Nadu and Kerala according to the report on "Status and Role of Ayush and Local Health Traditions Under the National Rural Health Mission" by Drs Ritu Priya and Shweta in 2011. The health-seeking behaviour is definitely pluralistic in nature and it reflects the inherent strengths and limitations of the various systems, thereby indicating a demand for AYUSH services that remains unfulfilled in many of the states due to poor quality of services and/or poor coverage according to the report. Also, many of the AYUSH interventions come at the household level and for simple conditions or ailments—and these are not considered as health-seeking behaviour. Overall, I believe there needs to be a state-level data generation exercise on this aspect through state AYUSH departments.'

Details of the NSSO June 2015 survey are available on the website of the Ministry of Statistics and Programme Implementation, Government of India ([www.mospi.gov.in](http://www.mospi.gov.in)).

MAHARRA HUSSAIN, *Dubai, United Arab Emirates*

#### **Hazards of using carbide for ripening fruits**

Nutrition experts have always strongly advocated eating fresh fruits for good health. With increasing awareness regarding healthy eating habits, a modification in the quantum of fresh fruit consumption has been evident in recent years. The practices followed for artificially ripening fruits are emerging as a dangerous

health hazard for the unsuspecting public who consume fresh fruits, blissfully unaware of the health consequences.

Appropriately ripened fruits are considered a healthy food as well as a delicacy. Ripening is a normally occurring irreversible physiological change by which the fruits become soft, undergo a change in colour and develop characteristic aroma and flavour. This process renders them edible, palatable and nutritious. In recent times, fruit trade has emerged as a rapid income-generating proposition. This has resulted in an increasing need for procuring firm and mature fruits that are unlikely to be damaged during transport over long distances. Consequently, the demand for harvesting unripened fruits, their refrigeration and artificial ripening at the destination market before retailing has been increasing.

Unsaturated hydrocarbons such as ethylene have been commercially used through gas emission or generator systems to artificially ripen harvested fruits. It has been observed that calcium carbide, a hazardous banned substance known to be carcinogenic, is being used indiscriminately wrapped in paper and kept in the middle of heaps of fruits as a popular choice for artificially ripening fruits. While fruits ripened with calcium carbide develop an attractive, often uniform-looking, external surface colour, the inside would not be ripe and remain raw. Such fruits artificially ripened with calcium carbide are tasteless, have a shorter shelf-life and are toxic.

On 14 August 2015, the High Court at Hyderabad took cognizance of the report in a leading Telugu language newspaper and a division bench of the High Court at Hyderabad heard at length the report submitted by the *amicus curiae*. The court had remarked that fruit traders who use calcium carbide to ripen fruits are 'worse than terrorists, killing generations of people with slow poison'. The division bench has asked the Central Government and the Andhra Pradesh and Telangana state governments to submit a concrete action plan to deal with the menace of 'carbide fruits'.

ALLADI MOHAN, *Tirupati, Andhra Pradesh*

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*The National Medical Journal of India* is looking for correspondents for the 'News from here and there' section. We are particularly interested in getting newswriters from the north and northeast regions of India as well as from other countries. By news, we refer to anything that might have happened in your region which will impact on the practice of medicine or will be of interest to physicians in India. The emphasis of the news items in this column, which are usually from 200 to 450 words, is on factual reporting. Comments and personal opinions should be kept to a minimum if at all. Interested correspondents should contact SANJAY A. PAI at [sanjayapai@gmail.com](mailto:sanjayapai@gmail.com) or [nmji@nmji.in](mailto:nmji@nmji.in)